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The Public Health Journal of Canada

INCORPORATING THE CANADIAN THERAPEUTIST AND SANITARY ENGINEER

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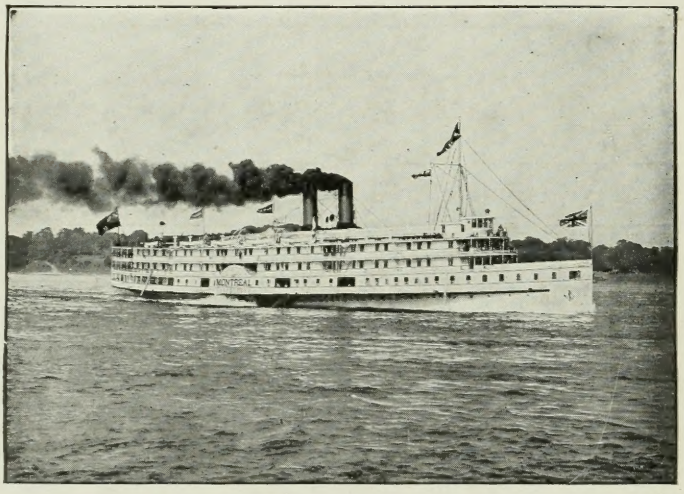

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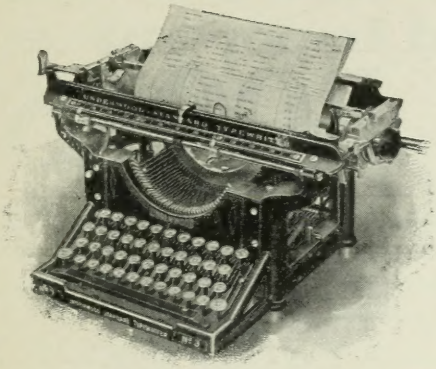

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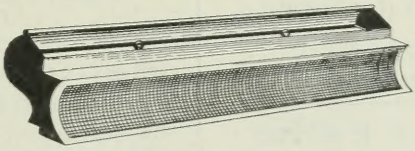

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INCORPORATING THE CANADIAN THERAPEUTIST AND SANITARY ENGINEER

(OFFICIAL ORGAN OF THE CANADIAN PUBLIC HEALTH ASSOCIATION)

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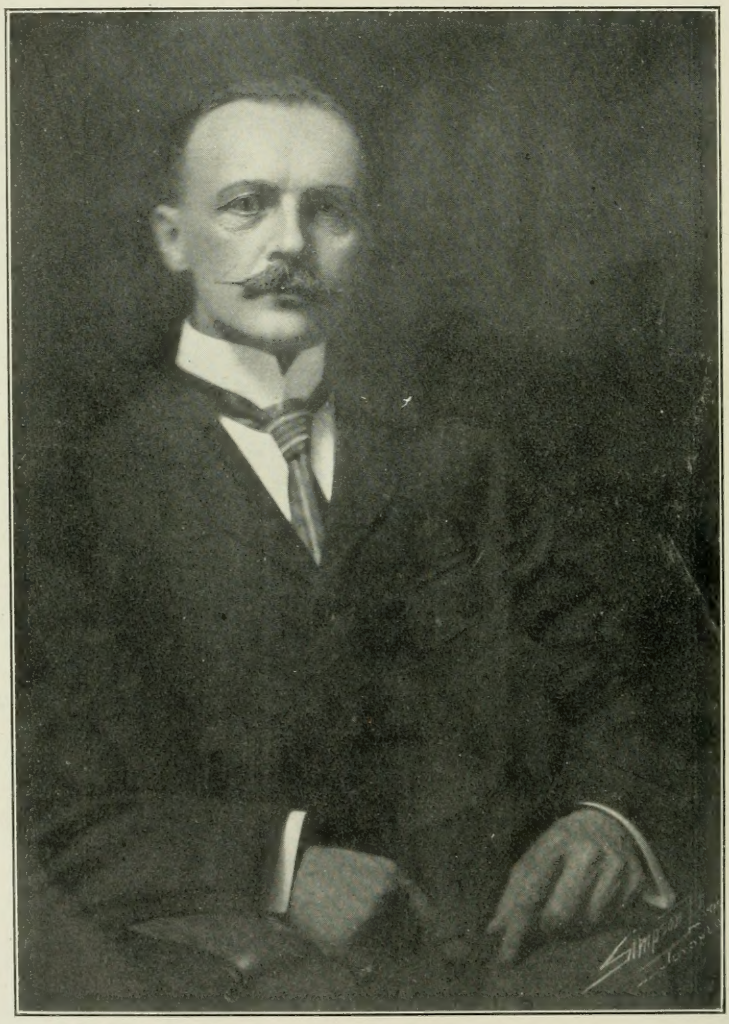

CHARLES A. HODGETTS, M.D.
Medical Adviser to the Commission of Conservation, Ottawa, Canada.

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The
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INCORPORATING THE CANADIAN THERAPEUTIST AND SANITARY ENGINEER

Vol. I SEPTEMBER, 1910 No. 9

Special Articles

THE IMPORTANCE OF PUBLIC HEALTH

From a National Standpoint

By CHAS. A. HODGETTS, M.D.
Medical Adviser to the Canadian Commission of Conservation

Almost "as idle as a painted ship upon a painted ocean," have drifted on, the nations of the earth, heeding little, caring less for the health of mankind; true it is that efforts have been made from time to time to prevent the spread of cholera and smallpox, and with the success achieved in these great health battles the people and governments have on the whole been satisfied. It is considered a nation's duty to maintain armaments of the highest degree of efficiency at enormous cost to the people. For what? For the prevention of war, and when occasion arises for the defeat and the destruction of the invaders. Statesmen are convinced of the wisdom of such a policy; politicians revel in the discussion of the theme; and the people, who pay the piper, in more ways than one are carried away in an ecstacy of national delirium—and vote large sums of money for these very questionable national extravagances.

We flatter ourselves war with all its horrors may be averted in this preventive manner, and as taxpayers we quietly foot the bills. How often in the world's history are the dogs of war let loose? What have been the national losses in the past century? I leave you to compute.

But what are the nations doing to avert the untold and the never revealed ravages of the ever-present enemy, which, like an unseen cancer, is gnawing at their vitals? If peace has its victories no less than war, it must be remembered that peace has its victims far more than war—for instance, in Great Britain during the Crimean War, the needless waste of life was greater than the loss of life in that war; a waste too accompanied by a long train of physical,

intellectual and moral evils involved in general degradation of the people. Are the governments of the nations organized in anything like the same manner for the protection of the health of the people as in the case of invasion from a national enemy? One or two have begun the work, but it can safely be said of most countries, the situation is tersely described in the opening words of this paper.

The people have in the main been satisfied with the work of curative medicine, and who but will acknowledge the great progress made in all branches of both medicine and surgery, how much suffering has been prevented, and how many lives have been saved by the more exact knowledge of the medical practitioner being brought to bear in diagnoses of diseases, and by skilful and judicious use of the knife, and wise selection of remedial treatment. It is well they have, for the results have been for the benefit of mankind, and medical men have perhaps thus unwittingly materially added to the wealth of the nations, for every time the life of a patient is prolonged the physician is adding value of a material kind to the capital of the country—infinitely more than the farmer who raises a litter of pigs and sells them to the butcher for consumption as food. The difference between the physician and the farmer is, the farmer generally gets paid, the physician often not; the farmer is considered as of national importance in the raising of that litter of pigs, the physician and the patient whom he cures, and the children of the patient who by his skill and advice are reared to manhood and womanhood are not. For convenience sake in most civilized countries both the man and the hog are placed in charge of a Department of Agriculture — with provision for a careful oversight of the little pigs, but seldom, if any, consideration for the patients and their offspring.

A state veterinarian will assist in the farmer case, but in the instance of the child he is of the earth earthy, pre-natal, post-natal, and for all eternity of no intrinsic value to the nation—while the pig was born to be killed by the butcher, and therefore has no right to die until ready for certified death, under the eye of a skilled veterinarian, so that it may increase the value of the country's products by some two or three hundred pounds of pork worth 9 cents a pound to the farmer. In the case of the hog to die of disease is unnatural, because all State Departments of Agriculture have so decreed. It is a part of a nation's asset, and no expense on the part of the country is too great to prevent this catastrophe; the loss of two hundred pounds of hog meat, worth 9 cents per pound to the farmer.

On the other hand, the infant is born to die—his days at most are three score years and ten, or a little over. All Christian teachers tell us so. It is quite contrary to law that he should be killed, no matter how worthless he may be, and so legislatures enact laws for the protection of life against accidents in workshops, mines, etc., safeguard the handling of explosives, and in many other ways, but to consider the child's health as of importance to the State, and to do anything to prevent the accident of illness is quite another matter. That is a duty and responsibility devolving entirely upon his parents, or, to extend the boundary, at most it concerns the municipality in which he dwells.

It is no new thing for opposition to be experienced when sanitary reforms are suggested, as, instance the following: Earl Fortescue, president of the Congress of the R.S.I., held in Exeter in 1880, in his address dealing with sanitary reform in Great Britain, from the administrative and legislative aspects, says,

referring to the work of Mr. Chadwick in 1842, when sanitary reforms were being initiated:

"On looking back at those days after the lapse of a whole generation, I must allow that, relying on the soundness of our views and the accumulated evidence on which they were based, we early sanitary reformers somewhat underrated the strength of the opposition we had to encounter. Ignorance, prejudice, vague alarm, and real or imagined self-interest arrayed against us a formidable body, comprising not only the mass of the wage class—for whose benefit, as the greatest sufferers from the then general violation of the plainest laws of hygiene, the efforts made for their enforcement were more especially directed—but comprising also too many who ought to have known better. I remember when the poor man's pig was a most potent election cry in various borough contests, and it was difficult to say whether the pig keepers themselves or their non-pig-keeping next-door neighbors suffered most from the close proximity of the animal, or were most indignant at the idea of his compulsory removal." And he adds: "I recollect at the same time Mr. John Bright and many other well-known politicians of both parties, opposed sanitary reform as did pretty generally the municipal authorities throughout the country.

"Similar conditions stalk through the land as in Great Britain seventy years ago. And we must not wonder then, when the argument is advanced, that the national government of any country should assume powers to treat professionally a mans hog and so prevent financial loss to the owner of the hog, but should not frame laws nor appoint competent officers to instruct me how to care for my child or how to prevent it from contracting certain communicable diseases, and so improve its physical condition and prevent premature death.

Why should the state interfere regarding the education of that child by enacting legislation requiring compulsory education under fines and penalties, and yet decline to legislate along the lines upon which the parent, as a parent, or in the wider sphere as a citizen, should care for the health of the child. The state makes provision for statutory taxes, even if the education of the child is paid for by the parents.

If the morals of either are bad, certain state enactments provide ways for correction, punishment and restraint, the latter not at the cost of the parents, although they be millionaires, but at the cost and charge of the State or municipality.

The state again assumes the duty of providing foster parents. It will even send its officers into the home, and, declaring the parents are not able to discharge their parental duties to the satisfaction of the state, remove the children and thus assume the duties of parentage.

It is proper and right that children should be educated. It is good for the state to establish a high standard of morality. It is humane for the state to remore children from the care of bad and sensuous parents.

The state provides shelter and care for those physically, mentally and also those morally unfit to be at large in society and unfit to meet the demands of everyday life. This, we say, is right and proper, for it is the duty of the well to protect the weak.

Provincial and federal institutions are proper in the present state of things, but the time will come when the present feeling of pride in state charitable institutions will take a turn, and they will to generations yet unborn be viewed as

ruins like old European castles, as monuments of the stupidity and ignorance of their ancestors. But on what grounds can the legislators who frame these good laws advance sound and logical arguments that it is not the sphere of the state, as a state, to assume any direct control over the health of the people ?

It is quite true that in this Dominion each province has a health act and statutory provisions bearing upon some particular phase of the life of the people. These provincial laws are very similar, and who will deny but that they have done some good in the prevention of disease, the betterment of local sanitary conditions ? But who will express satisfaction with the advances which we as a nation have made ? Are the people even educated up to these provincial laws ? Are they seized with their importance as factors in the making for the health of their portion of a greater nation? Are the present laws and their method of administration doing anything more than merely serving the purpose of quarantine, the prevention of nuisances, and the betterment of our home environments ? And that, too, only when local public opinion calls for their enforcement, or where a higher sense of the duties of citizenship are more keenly felt ?

Municipalities, like individuals, live too much to themselves.

Let us see if this be not true. A city, in the inception of a sewerage system, sees naught beyond its municipal boundaries, and looks for the easiest and cheapest way to dispose of its sewage, so that no nuisance is created within its corporation limits. It cares nothing as to how great a nuisance that sewage effluent may be to others, or how many lives may be lost by reason of the typhoid carried to adjoining municipalities. Compulsory vaccination is a statutory provision, and if carried out generally, would result in the almost total eradication of smallpox, but for reasons which are well known the statute is more honored with breach than in its observance. We know the result.

What shall we say of the methods of many cities in respect to the disposal of garbage ? Have we not all seen the town dump located often in an adjoining rural municipality, reeking to heaven, but unfending the olfactory nerves of those responsible for its creation.

Then, who has not seen and passed by on the farthest side of the rural slaughter house, in which is killed the uninspected animal intended for the city homes. Will the township health authorities do anything to right the sanitary wrongs ?—but seldom.

Space fails me to mention even a little, but just recollect, if you can, the dairy whose sanitary condition was ever improved for health's sake by order of the township board of health.

These illustrations are simply given to emphasize the fact that the administrators of the present health laws do not look upon them as of national importance, but as having a bearing simply upon the health of the people locally.

It is perhaps quite true that in one respect at least an improvement may be noticed in health legislation, so far as it relates to sewage disposal, and protection of public water supplies. A beginning only has been made, and more must be done.

The working out of the problem, or rather of the many problems, from a national standpoint, are before us for solution, and it would appear from the attention which they are receiving from the public generally, from the press, and from many of our legislators that many are within the possibility of solution.

The fact has at last come to be realized

that in Canada the health of the people must take a foremost place. We now realize that the nation's health is its true wealth; not to be computed by dollars and cents, but a heritage to be handed down to future generations; not only unblighted, but rather enhanced and improved by reason of better sanitary environments of our homes, our city, town and rural municipalities, and above all, by attention to personal hygiene, which is the groundwork of public health

We have reached that point where all realize that families cannot lodge like pigs and live like Christians.

In Canada at least, the national importance of public health has come to be realized as a fundamental principle, for it has found a place in the work of the Commission of Conservation, and in referring to it in his inaugural address, the chairman, Hon. Clifford Sifton, said, in part:

"The physical strength of the people is the source from which all others derive value. Extreme and scrupulous regard for the lives and health of the population may be taken as the best criterion of the degree of real civilization and refinement to which a country has attained. It cannot be said that it has received too much attention, through the provinces, the Dominion, and the municipalities have health laws and health administrations all doing effective work. There are, however, many branches of the subject, general in their character, which merit attention. The Dominion spends hundreds of thousands of dollars in eradicating the diseases of animals, and the work, it is pleasing to know, is being done with thoroughness. But no similar effort is made by province or Dominion to meet the ravages of diseases among human beings, such, e.g., as tuberculosis."

That there is a great work to be done in checking the inroads of tuberculosis is evidenced by the mortality statistics of the last census. In the census year there were 9,709 deaths from the disease in Canada. Or, in other words, twelve deaths out of every hundred in that year were due to tuberculosis. And yet tuberculosis is classed by modern medical science as a preventable disease.

The committee of the Commission of Public Health is presided over by Mr. E. B. Osler, M.P., of the city of Toronto, and although its duties are merely advisor to the governments of Canada, and not in any way executive, it is hoped and fully expected that good work will be accomplished.

Having indicated some of the lines of health work where we have fallen down through faulty legislation or failure on the part of local authorities to enforce existing laws—failure due to apathy—let us pursue a discussion of the importance of health to the nation from the economic and financial standpoint. Medical men are already seized with its importance from that of both curative and preventive medicine.

In Canada in 1901 (census year), there died 81,201 persons, which was a death rate of 15.12 per thousand, which is practically the same rate as that of the great city of London—while in comparison to the country south of us it is nearly 2.5 per thousand lower than the census year 1900. If, however, we remember that the mortality rate in cities is high, that it is high for the poor, high for the laborers, and low for the opposites of each of these groups where the conditions of life are good, then we must consider this death rate high in Canada, where we have not as yet the teeming millions with their remediable adjuncts, poverty and crime, with their degrading and degenerating environments.

Professor Fisher, head of the Depart-

ment of Political Economy of Yale, estimates that the United States could save annually at least one billion dollars now lost through deaths that could be prevented, and a further sum of half a billion through preventable sickness. If we figure out the losses for this Dominion on the basis adopted by Professor Fisher, allowing for all differences, viz., those of population, morbidity and mortality, there could be saved some fifty million dollars on account of mortality and twenty-five million through preventable sickness. It may be added that the figures of the Yale professor are considered those of a conservative political economist. Then, too, just look at his figures as regards tuberculosis and typhoid fever. He estimates the annual loss from the white man's plague in potential earnings cut off by death at one billion dollars; while, for the same reasons, typhoid costs 350 million dollars. If this waste of national wealth in the United States thus grossly estimated can be prevented, what shall we Canadians say of the great and growing annual losses we are called upon as a young nation to endure ? We must not be discouraged. It is not a case of what can't be cured must be endured. The speedy application of the proper sanitary laws along a concerted line of action by municipalities and provinces under the co-ordinating and directing hand of a proper federal department will materially change the situation. That this is not idle talk is well shown by a few of the instances where improvement has been made in the past, for there are many examples of isolated cases where the enforcement of the proper sanitary measures by an authority properly seized with their importance, and trained in their application, have resulted in marked and permanent benefit.

The City of Havana, which, prior to the American occupation, was virtually a death trap, with a death rate averaging over 50 per thousand in years without yellow fever, now has a mortality of between 20 and 24, and under the same rule the death rate of Panama has dropped from 100 to less than 34 per thousand.

The effect of vaccination and re-vaccination upon smallpox is historical, and in a similar manner will the use of antidiphtheretic serum, as a remedial and prophylactic measure when fully applied, be written up in the history of the nations.

The application of the general laws of hygiene and their enforcement, particularly in some of the large centres of population, by qualified health authorities clothed with only partial powers, are very marked and stand forth as examples of what may be accomplished by national governments for the general good of less fortunate communities.

Note the death rate of London, formerly as high as 50, now only 15; that of Vienna, reduced from 60 to 23 per thousand.

Coming nearer home, in fact right at home, there is the splendid example of Winnipeg as regards the effect of the enforcement of the laws of hygiene upon the mortality of one disease alone, typhoid fever, and for purpose of illustration, the words of the efficient Medical Officer of Health, Dr. Douglas, as given in his annual report for the year 1909:

" The typhoid situation in Winnipeg is at present very hopeful, and the differences in our death rate for the past two years as compared with the eight years preceding them (when the city underwent a rapid growth without sanitation to keep pace with this) is one of the most striking object lessons of what can be done by applying proper remedies to obvious conditions that we are aware of.

" Your committee may recollect that

some four years ago the task was undertaken of remedying certain glaring sanitary defects that existed in our city, and which were supposed to be responsible for the inordinate amount of typhoid which annually occurred. You may recall that typhoid was constantly unduly prevalent, and that each autumn great outbreaks occurred which were not due to water infection, but principally flies and contact.

"Efforts were primarily directed against those great typhoid reservoirs—the old open privies on the surface of the ground, of which we had some 6,400. I am pleased to be able to report that the last of these contrivances was gotten rid of during 1909. These closets have been largely replaced by plumbing, and, where it was not possible to install this, owing to the non-existence of sewers, brick and cement pits were put in. We have found these, while not ideal, about the best substitute for plumbing for use in this climate. At present no outside closets are allowed where sewers are available.

"Together with the abolition of the outside closets went increased activity along other lines, and a general cleaning up took place.

"At present every reported case of typhoid is investigated, and the data studied with the object of ascertaining its source." He further adds

"In addition, the public is becoming better informed on typhoid prevention than formerly, and we usually find intelligent appreciation of our efforts and earnest co-operation in carrying out the regulations and suggestions of the department."

Quoting from the report, the typhoid mortality rate fell from 248 in 1904, to 38 in one hundred thousand in 1909.

What Winnipeg did not do in the years immediately preceding 1904, and the results of the municipal neglect, are being repeated every year throughout the length and breadth of this Dominion; the lives of the immediate residents not only being jeojardized, but the lives of thousands of non-residents, those, who through the incident of travel, visit it may be only for a few days, and then pass on. Should such things be? We know what should be done, but where is the one authority to say, "These unsanitary things must cease. You must not endanger the lives of others. You must not continue to endanger your own lives." Must it be left in every case to the sad awakening such as overtook Winnipeg and has overtaken hundreds of other cities and towns? Must it be said of us that the blood of our fellow men has to be offered upon the altars of our neglect of the simple rules of hygiene, laws which have been known for centuries?

It must be noted that this wanton waste of life does not apply to the losses from typhoid fever alone. There are many others of greater or of equal importance, many others much more difficult to deal with, but which are amenable to the laws of health when properly applied.

It is the habit of municipal authorities to procrastinate as it is that of individuals. In both cases it is "the thief of time" which, in the case of the corporation, means the lives of many. Shall not, therefore, some means be provided for the prevention of these wholesale murders, the prevention of which is of greater importance than the prevention of war, which, with all its attendant horrors, is greatly to be deplored, although its effects are neither so widespread nor so big with import to posterity.

The punishment for murder, rapine, rebellion or riot are matters of national importance. In the neglect of the laws of

personal hygiene we have murder, of a degree, rapine or spoilation, rebellion against law, and a constant undercurrent of unrest or riot. The results of infractions of the Criminal Code are similar to those of the Sanitary Code. The former is a national code, and who shall say the Sanitary is of less importance to the nation. Indeed, it may be stated that with a proper enforcement of the Sanitary Code the Criminal Code would be less and less necessary, and would become a small volume.

It might be deemed advisable by some to deal with the neglect of the Sanitary Code by taking procedure against those who contravene it to the detriment or danger to the health of others under the Criminal Code. This, in the writer's experience, has been found to be a most satisfactory method where at all possible.

The United States Commission in Lunacy points out the urgent necessity which exists for some control of preventable diseases in relation to the insane, thus:

"There is probably no more tragic result in a venereal disease than the admission to the New York State hospitals of half a thousand new cases of general paralysis each year the majority of these have reached the prime of life, when their productive capacity and their value to the state are the highest, and when their responsibilities for the support of others have been fully assumed. During the last twenty years the number of insane under treatment has increased more than ninety-seven per cent., while the population has increased in the same time only fifty-three per cent.

Alcohol is given as an etiological factor in nearly forty per cent. of all admissions to New York State hospitals. The actual loss to the State of New York through alcoholic insanity is $2,400,000 each year, and as an example, the State of New York in the year 1908 provided for nearly fifty thousand who were physically and morally diseased.

The study of the prevention of insanity, epilepsy, imbecility and feeble-mindedness is necessary, because by the framing of proper laws thousands of persons might be saved to the country, each one of whom would be adding to the nation's wealth, lightening the burden of others, and not increasing it. This is considered dangerous ground, as it opens up the question of the marriage of those who are likely to hand down a blighted offspring. The state has, however, worked out the question of the marriage of near relatives, and just so can it be worked out in the case of the unfit. The States of Indiana, Michigan and Connecticut have already made statutory provision along these lines.

It is essential, for the solving of our sanitary and economic problems, that the provincial laws be progressive and uniform, that they be enforced by competent medical officers of health; but it is equally necessary from a national standpoint that a national bureau or department be organized to co-operate and work in harmony therewith, and equally important that the education of the public in respect to personal hygiene be made a more prominent feature in the future than it has been in the past.

It is impossible in an article of this length to touch upon many of the features of national health work; only a few have been referred to; they are of sufficient importance in themselves to gratify any government in beginning the work of an organization; for once properly organized, development of health work along national lines will appeal to the people, and in the people confidence is well founded.

THE PRODUCT OF DAME MOOLIE

By RICHARD J. SNOWHOOK

If all the babies were to assemble in convention for the purpose of promoting the welfare of infants there would be written into their platform one plank by unanimous vote. Furthermore, that plank would not take the form of a plea for a uniform standard of rattles, nor would problems having to do with rubber dolls, morning baths or safety pins be chosen as subjects vital to the welfare of babies.

"Give us pure, fresh, unadulterated milk!"

This would be adopted by the infants in "convention assembled" as their battle cry, and the plea would receive the lusty-lunged endorsement of big babies, little babies, thin babies and fat babies alike.

But Mr. Baby always has been so busy dominating the affairs of his household that he has had no time to attend conventions for the promotion of pure milk. His wishes in this direction, therefore, have been entrusted to "grown-ups."

Under a system of inspection, therefore, which reaches from the dairy farm in the country to the baby's bottle in town or city, the quality of the daily milk supply is in many places being made to conform with the standard demanded by the wee consumer. That the task of inspection is by no means a small one in the average city may be gleaned from a peep at the official records of gallons of milk supplied.

Perhaps you don't often come in contact with a milk inspector, and it may be that you never have seen such an official. He is a busy man, nevertheless, known to many milk dealers in the city, where milk inspection is enforced, as well as to many farmers.

This milk inspector is a dominant figure at railroad platforms where the product of Dame Moolie is delivered every day. The man, attired in blue uniform, wearing a star, and vested with police authority, is the official representative of city babies, and as such he has come to be feared by the unscrupulous dealer, and respected by the milkman who is honest.

On the arrival of the milk train at one of the platforms an inspector assumes charge of the situation. While cans are being rattled from the cars to the waiting wagons the inspector proceeds to "get busy." Armed with his testing appartus, he takes samples from cans, O.K.s or condemns a consignment as the case may be, or orders the smashing of rusty or dirty tin receptacles.

While each consignment of milk comes under the microscopic eye of the inspector, little time is lost to the dealer by the examination of cans and milk tests. The health officials aim to complete their task in the shortest possible time, realizing that unnecessary delay would work to the disadvantage of the milk. The inspectors appreciate also that the milkmen are anxious to leave the platform as fast as they can load their wagons, for their customers become impatient when the milk arrives late.

Acting on the theory that eternal vigilance is the price of pure milk, the health officials are not satisfied with an examination of the product as it reaches the city. Their search for possible impurities leads them to the fountain head —to the green hills and meadows where the real milk producers, the cows themselves, are pastured.

Inspectors are kept busy throughout the year going from farm to farm, examining not only the condition of the milk before the product is shipped, but making reports on the physical condition of the cows and on the sanitary equipment of barns, pastures and farm houses. The health of members of the farmer's family is enquired into as well.

Nor does a farmer ever know when an inspector may bob up and proceed to pry into things. And the country inspector is vested with full authority to direct alterations or, if such a course may be deemed imperative, to stop shipment of milk from any dairy farm that may be found to be insanitary.

The conscientious inspector becomes a veritable "snoop" on reaching a farm he is to examine.

"Nice day," he says to the farmer, and the greeting on the latter's part usually is cordial.

It's the inspector's move next.

"How's the well?" he enquires, for the drinking water on a farm is an important factor in the sanitary arrangements.

When the water is pumped up from the well the inspector fills a cup and sips a little. He has had probably a dozen drinks of water under similar circumstances the same day, and is not really thirsty. He wants to examine the well, and if the water proves to be good, the inspector makes a note to that effect on a "score card" based on a system of credits and demerits.

With his score card in hand and with the farmer at his heels, the inspector goes to the cow shed. As he gazes about apparently nothing escapes his eye. He peeps into the feed bin, makes a note of the facilities for ventilation, and observes the barn for cleanliness or lack of cleanliness as the case may be.

Then the inspector goes out and "snoops" around the cow pasture, examines the cooling house, where the milk is stored before shipping; asks to see the milk pails, cans and other utensils. If everything about the place is found to be satisfactory from a sanitary point of view the farmer is marked "100" on the score card, and a copy of the record is sent to the city to be placed with hundreds of similar cards in the files of the health department. Farmers whose dairies do not come up to the highest standard of cleanliness are notified to make improvements suggested by the inspector, and within a few weeks their places are re-inspected.

Most "big" milk dealers maintain model dairy farms and sanitary bottling plants in the country. In many of these plants the milk is bottled by machinery, the product running through a series of sterilized tanks and pipes until it flows into a bottle, the patent stopper of which also is mechanically adjusted.

Thus the fluid from the time it finds its way into the milk pail until it is delivered to the customer is kept from the hands of helpers, and therefore is reasonably safe from possible contamination. On some of the big dairy farms are pasteurization plants, while proprietors of other milk farms seek co-operation of bacteriologists.

Like the city milk dealer the average farmer welcomes inspection, and seeks to co-operate with departments of health. The well-regulated dairy is operated according to a set of rules laid down by health officials.

But the guarding of babies from impure milk is not left entirely with public officials. Stations throughout the poorer sections of many cities for the distribution of pasteurized and modified milk are maintained by the milk commissions.

THINGS TO AVOID IN FOOD AND DRINK

By MARION HARLAND

"We should suspect some danger near,
Where we possess delight."

Thus runs the poetistic whine. Dr. Isaac Watts said it. Like a host of other mechanical jingles turned out from the same brain and fingers, it is unworthy of the man who wrote some of the noblest hymns in the English language. The story goes that the titled patrons, in a corner of whose mansion he lived for years, expected him to produce a hymn every morning before he met them at breakfast. He was, during these years, engaged upon the "Divine Songs and Hymns" that earned him immortality in church and Sunday School. If this be true, one comprehends much and forgives almost as much in the said "productions."

In pondering the subject of this article, the pessimistic couplet set at its head has haunted me persistently. To a healthy body and the normal appetite that should go with health, eating is a delight. The day has gone clear out of sight in which the refined women and intellectual men thought the pleasures of the table beneath the consideration of noble minds. As late as Sydney Smith's times, his learned brethren, ecclesiastical and literary, frowned or sneered at the frivolity or the epicureanism that dictated the rhymed salad recipe which is perhaps better known to the general reading public than any other effusion of the clerical wit.

Our age is essentially practical and commonsense. When one has no relish for food (in Sydney Smith's generation bluff squires would have said "no stomach for victuals"), we assume that he is ailing in body or perturbed in spirit. One and all, we eat to live, and are not ashamed to confess that we live to eat, so far as to reckon the gratification of appetite one of the joys of existence.

Therefore, when brought up against the truth that dangers, seen and unseen, disport themselves in the food we love and must have, we sicken at heart.

At the outset of our dissertation I call attention to the fact that caution may degenerate into foolish squeamishness. We have heard from babyhood of the over-religious Brahmin, who, believing it a mortal sin to eat of any living creature, perished with thirst after a mischievous Englishman showed him a drop of wriggling water under the microscope. Fastidiousness akin to this fanaticism moved the woman who asked her physician which was the lesser risk: to drink unboiled water with its freight of animalculae, or the flat, cooked liquid, which, she had been told, contained no elements of nutriment.

"That depends entirely, madam," replied the witty Galen, "upon whether you choose to make an aquarium or a cemetery of your stomach."

Yet we cannot deny that the water we drink is sometimes a fruitful source of disease. Witness the neighborhoods that have been plague-stricken by rivers polluted at their sources or converted into sewers in midflow by filthy drainage. During the American Civil War the creeks draining the outlying swamps into the Chickahominy slew more than the Federal guns. An officer who escaped the fever that decimated his regiment has said that he owed his safety to his practice, persisted in from the beginning of the campaign, of drinking no water that

had not been boiled at least forty minutes.

Hardly a summer passes in which the cry is not raised in our cities that the water supply is tainted. Sometimes, and oftener, we are warned that the ice gathered last winter in this or that neighborhood is full of typhoid germs. It may be unwise to disregard all these danger signals. If it is established beyond peradventure that the water supply is poisoned, let those who can afford it drink bottled spring water, guaranteed to be harmless, and let those who cannot buy this by the case boil the water used for drinking and cooking.

"Troublesome?" of course it is! But the game is worth a thousand candles. I know of scores of families where a regular part of the summer work is boiling daily as many gallons of water as will last out the twenty-four hours. It is boiled for half an hour to make sure of the destruction of the most robust bacilli, then cooled, and that intended for table use or for drinking between meals is set in the ice. There is a degree of truth in the rumors touching the germs that are proof against freezing, and which, if torpid for a time, regain life and action in the human stomach. I have tasted ice that had the "tang" of copperas, and was frankly condemned by scientific men who analyzed it. I have detected other flavors of ice that should be absolutely destitute of any taste or smell. Clearly, it is the part of prudence never to put suspected ice into glass or pitcher. Set the vessel of water in the ice box or pack it with broken ice long enough to cool it. Nobody is compelled to drink a beverage in which ice is dissolved, unless one wills to do it. Give yourself the benefit of the doubt when you "suspect some danger near" in the guise of equivocal ice.

"Ptomaine poison" is a phrase sprung upon us within the last decade. The thing itself is an old acquaintance, although thus lately christened.

It is an ungainly term, with a very ugly root, being derived from a Greek word, signifying a corpse, with the added significance of "falling." In the loose way even educated people have of fitting words to things that "come handy," we associate our new scientific term with fish, seldom applying it elsewhere. In fact, it is the "generic name of alkaloid bodies formed from animal or vegetable tissues during putrefaction." From these alkaloid germs thus evolved spring livlier bacteria, and so on and so on, and, for all we know, ad infinitum.

We knew, and our ancestors knew before us, that stale fish is one of the most deadly of unwholesome foods, long before chemists helped us to a name for the noxious principle pervading it. The very elements that make it a valuable brain food are, by decomposition, perverted into ptomaine.

Without knowing why, we learned long ago that fish is less likely to disagree with the delicate stomaches if eaten with acid sauce or with the accompaniment of pure acid. When a mere child I discovered that shad did not cause indigestion when I seasoned it with vinegar or lemon. Without a suspicion that the deadly "alkaloid" was thus measurably counteracted, I fell into the habit of using acids with fish. It was through instinctive obedience to what we felt rather than knew that we came to consider lemon and sardines inseparable.

I think I have in a previous article told of the chef who boasted of having "preserved fish from decomposition by a process of vinegar and charcoal." He builded better than he knew.

Granting that acid helps to ward off the peril of ptomaine, stand fast to the rule of eating none except fresh fish.

Cold storage has done an incalculable amount of harm. Ten years ago I ate what was set before me as "the first shad of the season," and nearly died as the penalty of misplaced confidence. I discovered, after my recovery, that it had lain in cold storage since the preceding season. "Frozen, hence absolutely harmless!" protested the vendor.

I am an incorrigible infidel as to the effect of freezing upon fish, particularly those of soft flesh. If you have any misgivings on the subject, yet cannot refuse the "delicacy" (?) lessen the peril by seasoning it with red pepper and tart sauce or clear lemon juice.

Purchase none that is in the least doubtful as to age. If the eye be dull and sunken and the fins flabby, take to yourself the benefit of the doubt and let it alone.

I have talked at length upon fish ptomaines because danger lurks more frequently in this perishable article of diet than in any other. The edible mushroom is a close second. If the truth were known, we should find that many cases of illness attributed to poisonous fungi, gathered by mistake, should have been ascribed to stale mushrooms that were harmless when freshly gathered. Give a wide berth to such as are offered as barbains because "not quite fresh, you know." When they begin to wither into flabbiness and curl up at the edges, the ptomaines are getting in their fine work. Red pepper and lemon may, and will, kill the weaker breed of destroyers. They avail little against those that have had three days' start.

Mouldy bread is another lurking place for ptomaines. I have heard housekeepers gravely assert that "mould does not hurt bread." A woman who had studied domestic science in college argued with me, to her own satisfaction, that mould, being a vegetable growth, when it appears upon stale bread, is as harmless as yeast. "Of which it may be said to be a by-product," she concluded. "Under the microscope you would see a miniature forest in that slice of mouldy bread. Toast it and you have dead wood—nothing worse."

She may have been right. I may err in trying to keep bread from moulding, if possible, and to throw it to pigs and chickens when the blue-edged forests appear upon it. I do the same with regard to musty loaves. I am positive in the conviction that musty flour and souring Indian meal are unsafe as food for human creatures. Left to their own destruction as foods, the flour will develop weevels and the meal mealworms in due time. The germs of both must have been in the must and sourness. I actually knew one frugal housewife who sifted the weevils out of the flour and put it back into the barrel for family use! It never occurred to her that there might be as many invisible germs in the sifted flour as there were living wrigglers before she used the sieve.

Custards develop poisonous qualities if kept too long. Not a dozen years ago twenty families in one neighborhood of a great city bought custard pies from the same confectioner, and all who ate of them were made ill. The symptoms were distinctly those of poisoning, and investigation was made. The confectioner confessed that the custard had been made three days before they were offered for sale. Chemical analysis showed the presence of some deadly agent—I forget what. Now we should call it "ptomaine."

Sprouting potatoes are unwholesome. I maintain that the water in which raw potatoes are cooked should be thrown away as unfit for culinary purposes. In some countries it is reckoned poisonous. Old potatoes should be cooked in two

waters. Sprouting potatoes should not be cooked at all, except for chickens and pigs. Luckily, the rank smell that goes with the pale, dingy green of the peeled vegetable repels the would-be eater.

Raw oysters have had such a black eye (to borrow a sporting phrase) in some cities within the past five years that a word of caution would seem needless. In consequence of the general alarm, the bivalves have fallen into disrepute as an opening course for dinner and luncheon. When they appear in this capacity, it is often under the guise of "oyster cocktails." The acid and tabasco sauce are supposed to neutralize or kill the poisonous bacilli.

Since prevention is, always and everywhere, better than cure, it behooves the wise manager of the household to shield her provisions, raw and cooked, from the peril of contagion. A fly will deposit enough eggs in meat in a second of time to stock it with larvae in less than forty-eight hours. Therefore, keep meats behind wire, and if they are to be kept a day or two without cooking, wash over with vinegar and a dash of red pepper.

Lay a lump of charcoal in the bottom of the chamber of the refrigerator in which milk and butter are kept.

Make free use of the whitewash brush in the root cellar, and everywhere let in the free air and sunshine (when you can get it!) once a day. Have wire screens in your windows and doors all summer.

Corruption breeds in warm darkness, and is carried into your dwellings upon the feet and feelers of insects. The price of security from perils, visible and microscopic, is eternal and intelligent vigilance.

SEWAGE DISPOSAL IN SASKATCHEWAN

By T. AIRD MURRAY, M. Can. Soc. C. E.
Consulting Engineer of the Saskatchewan Bureau of Public Health.

The problem of sewage disposal is a new one in Canada. In the Middle North-West, that is, in the provinces of Manitoba, Saskatchewan and Alberta, there exist no plants which attempt to deal with the problem of sewage purification. There are isolated cases in which the so-called septic tank has been adopted. Two cities in Saskatchewan, viz., Regina and Moose Jaw, have enjoyed the more or less questionable benefits of septic tank treatment for a number of years. These septic tanks were installed in the first instance as a measure to prevent stream pollution. In neither case have they fulfilled that purpose. While it is acknowledged that the tanks have kept back a portion of the grosser solids, it is also apparent that the liquid from the tanks has been the cause of much nuisance in both cases, the streams, below the tanks, for a considerable distance being very foul as the results of organic putrefaction.

Dr. Seymour, the Commissioner of Health, called me in on June of 1910 to advise with him as to the best measures which might be taken to prevent stream pollution from sewage discharges; since that date my service, as a consulting expert, have been retained. Dr. Seymour has asked me to put together a few notes explaining as shortly as possible the various factors which have guided me in advising him to adopt as far as possible certain defined lines in connection with this important question.

The term "important" as applied to sewage disposal is a very significant one in the province of Saskatchewan. Water for domestic purposes, apart from the two great rivers of the North and South Saskatchewans, can only be obtained from small creeks and shallow underground sources. The greater part of the rainfall percolates the soil, and is found in sand and gravel layers, which exist, generally, immediately below the soil layer and above the boulder clay. This sand and gravel layer is, at times, very near the surface, but is seldom found at greater depths than 200 feet; beyond this depth, once we enter the boulder clay, no water is found of any consequence. The creeks, for the most part, run dry in times of drought; and surface water generally must be conserved by storage reservoirs. Although the country is only yet sparsely populated, even the two large rivers at times show signs of intestinal contamination by the presence of B. Coli. Dr. Seymour has, therefore, wisely seen fit to adopt strong measures to prevent the limited sources of water supply from being contaminated with sewage discharges.

The Provincial Legislature, in the fall of 1909, passed a revised Public Health Act, which contains the following enactments dealing with the question of sewerage and sewage disposal.

"22. When the construction, alteration or extension of a common sewer or system of public sewerage is contemplated by the municipal council of any municipality or by any person or body corporate, such council, person or body corporate shall submit to the commissioner all plans and specifications in connection with the construction, alteration or ex-

tension of such common sewer or system of sewerage and in connection with the purification and disposal of the sewage.

(2). No common sewer or system of sewerage shall be established or continued unless there is maintained in connection therewith a system of sewage purification and disposal which removes and avoids any menace to the public health and the commissioner may call for, and any council, person or body corporate shall when requested furnish as soon as may be such information and data in relation to such matters under their control as the commissioner may deem necessary."

The passing of this enactment gave efficient powers to the commissioner to insist on some method of sewage disposal. The question which the commissioner then put to me was simply this. what form of and how much of sewage purification shall I insist upon ?

Now I do not intend on the present occasion to go into any detail in the question of sewage purification in general, I simply wish to give my reasons for advising a particular line of policy in this particular province.

I think it will be acknowledged that all the various factors appertaining to sewage disposal processes can be crystallized under certain heads, viz.—

(a) Removal of suspended solids.

(b) Removal of tendency to putrescibility of organic compounds and organic solids in solution.

(c) Removal of pathogenity.

I think it will also be acknowledged that while (a) and (b) will provide a liquid discharge which is chemically stable, and will prevent what may be termed an aesthetic nuisance to a stream, the two processes may be useless from a pathogenic point of view, unless followed up by (c).

I think it will also be acknowledged that there may be occasions when the completion of the processes (a), (b) and (c) may not be required, and where either the one or the other may meet special requirements. I have, therefore, recommended that no fixed standard, either as to the non-putrescibility or removal of pathogenity be insisted upon, but that each particular case be treated on its merits with reference to location and particular conditions.

It is obvious, however, that where it is a question of any chance of a water supply source being affected, the three complete processes must be insisted upon.

The processes (a) and (b) viz., removal of suspended solids and removal of tendency to putrescibility cannot be relied upon by any of the ordinary processes to remove more than 80 per cent. of the total bacteria in the raw sewage. A raw sewage giving the low count of 1,000,000 bacteria per C. C. will at an 80 per cent. removal still show 200,000 bacteria per C. C., and would require a dilution of 1,000 times with pure water to bring the count down to 100 per C. C., the German standard for filtered drinking water.

There are many sanitary engineers, who hold, that it is more especially the duty of those responsible for water supply to look after the removal of pathogenity, than for those responsible for sewage purification. While this may be true in certain countries where the rivers have become hopelessly impure, and where sewage disposal has become uncontrollable; I do not think it holds good in a new country, where there is a possibility of early preventative measures for the retention of the original purity of streams, as far as possible. However, I have advised the Commissioner of Health to insist as far as possible on the removal of pathogenity by means of simple disinfection of the non-putrescible liquid

effluents, with a view to, as follows:—

(a) Prevention of intestinal contamination of streams by typhoid or other other germs.

(b) Making it easier for municipalities to treat surface water by rapid filtration for removal of turbidity.

(c) Defending the small communities and individual farmers who cannot afford to put in expensive filter plants to guard their water supply against pathogenic contamination.

The adoption of the principal that disinfection or removal of pathogenity has led some to conclude, that the older systems for the removal of putrescibility require reconsideration, and that we are entering on a new era with reference to sewage disposal methods. I do not think that this conclusion is warranted; but, that any method of disinfection employed, depending upon the liberation of the nascent oxygen, depends for its efficiency upon the removal of solids in the first instance, and removal of putrescibility in the second. It is difficult and expensive, and almost practically impossible to disinfect the solids in sewage, if when treated in bulk, because of the length of time required for penetration by the disinfectant.

It is difficult and expensive to disinfect sewage from which even most of the suspended solids have been removed, because of the affinity of unstable organic matter for nascent oxygen.

Putrescible sewage, even if disinfected, still remains putrescible. Sterilization only delays putrescence for a time.

It would therefore appear that even granting the necessity of pathogenic disinfection, the processes (a) and (b) are still quite necessary. When the suspended solids are removed and the liquid solids are rendered stable, it is an easy and inexpensive operation to disinfect sewage effluents. From one to two parts per 1,000,000 of available chlorine obtained cheaply in the form of hypochlorite from ordinary bleach is all that is necessary. The cost of the apparatus for applying the disinfectant is hardly worth consideration.

The writer has lately disinfected the Toronto water supply 36,000,000 gallons per day at an outlay of $100, and operating expenses of 40 cents per 1,000,000 gallons treated, with the total elimination of B. Coli, with 33 parts of chlorine per 1,000,000.

I do not consider that disinfection of sewage effluents will in any radical way affect the present methods employed for removal of solids and putrescibility, but will simply form a useful and efficient adjunct.

The question of the best method to employ for removal of solids and putrescibility in the province of Saskatchewan, at first appeared a difficult one, because of the severe frosts experienced in the winter months. It was at once recognized that although nitrification may act efficiently in certain climates, it would not act at all at temperatures below zero. Here, in Saskatchewan, we have temperatures which may reach between 40 and 50 below. This factor of the interference by frost affects every known system which relies upon nitrification for the production of a stable effluent. It affects equally land intermittent filtration and the modern methods of so-called biological filtration, either by use of contact beds or trickling filters. The writer knew of no efficient method of rendering a putrescible sewage non-putrescible, except either by land filtration or the newer and more compact processes. It became a question, therefore, of accepting either the one or the other, and fighting off the frost. We can keep the frost out of our dwellings, therefore we can keep it out of our filters. Protection from

frost is required. The amount of protection is simply a question of cost. This is an extra cost which must be faced in the Middle North-West of Canada, and will make sewage disposal works just so much dearer than in the milder-situated countries.

Protection from frost being admitted, it then became necessary to determine upon the system which could be the most easily protected. Obviously the system which was most compact, occupying the least area, requiring a minimum of covering and space to be heated, was most suitable to the province. Land intermittent filtration, which otherwise because of the nature of the land might have given good results was out of the question, because of the great area required. Everything pointed to covered-in sedimentation tanks for the removal of solids followed by trickling filters for the removal of putrescibility, as providing the least area necessary for the works. The conclusion which I have come to is, therefore, that the best interests in sewage purification can be met by:

(a) Sedimentation tanks (covered) allowing the removal of solids by gravitation.

(b) Trickling filters (covered and heated when necessary) allowing the removal of putrescibility by means of nitrification.

(c) Disinfection of the non-putrescible liquid by hypochlorite in tanks which allow of the settlement of the humus from the trickling filters.

Several plans of schemes promoted on the above lines for some of the towns and cities in the province are now on view. Results have not yet been obtained, but it is anticipated that in spite of the severity of the winter climate that such results will prove satisfactory with careful and efficient management.

World Views

What Germany Has Done to Wipe Out the Shame of Crowded Cities.

"The poor are always with us," but some nations take better care of them than others. The idea that poverty necessarily involves squalor has been exploded in Germany and Austria, where the housing of the poor is regulated better than in any other part of the world.

In most German and some Austrian and Swiss cities the city is divided into zones or districts in which all buildings can be only a certain number of storeys in height and cover a stated proportion of the area of the lot. The cheaper the land the smaller the number of storeys and the larger the yard area is the general rule, while in many of the cities buildings must be detached instead of being built in solid rows, thus permitting the sun's rays to penetrate.

The suburban or undeveloped districts are always carefully restricted to low buildings, with large yards, so that the crowded blocks of the centres and the older parts of the city will not be duplicated. Laws have been passed giving each city the right to determine the number of cottages that may be erected to the acre, and the prohibition of factories in certain sections prevents the massing of population in already congested districts.

A good deal of care is devoted to the planning of streets, which are constructed as inexpensively as possible to avoid heavy assessment and the consequent increase of rental.

One of the most salutary regulations prevailing in all German cities is that which aims at overcrowding. The number of occupants, adult and minor, permitted in a particular room is plainly posted in the room, and the number may under no consideration be exceeded. Instead of having a general rule applicable to all rooms indiscriminately, each individual room is regularly inspected and its capacity once and for all determined. Heavy fines are imposed on those who violate these regulations, and inspectors frequently descend upon the house at night to ascertain whether or not there are too many occupants to a room.

In cases of absolute destitution, the city provides suitable accommodations or makes other provisions for the family, while thousands of humble subjects are housed in the numerous municipal tenement houses which are run by the cities. These tenements are usually rented to unskilled workers at low rentals, but generally meet the cost of maintenance and upkeep, and net a fair return. These quarters are by no means elaborate, but they combine simplicity with comfort, and the windowless room is unheard of

In addition to these excellent features most German cities have numerous public parks and playgrounds, and the generally sturdy condition of German children is attibuted to the influence of these open-air spaces, where the children may develop their muscles and their lungs and accumulate energy and strength to ward off disease.

Cooling Milk a Sanitary Necessity.

The cooling of milk is a sanitary necessity, according to R. E. Hundertmark, inspector for the New Orleans Pure Milk Society. "If it were possible to obtain a perfectly sterile milk," says Mr. Hundertmark, "cooling would not be neces-

sary, but since many bacteria get into the milk from the air, hair on the cow, from the milkers and other sources, cooling has been found necessary. The fact that the market milk of New Orleans has a very high bacterial count, due to poor management at the dairy and also to improper handling in the hands of the consumer, is well known. It often happens that refrigerators in the house and even refrigerator car service are called upon to act as a cooling media for milk and other products.

"To show that milk should be cooled promptly in order to keep the bacterial growth down, and to show the fallacy of expecting a refrigerator to cool warm milk, the following experiment was tried: Two eight-gallon cans of milk were taken as soon as milked and well intermixed. A sample of milk was then removed from each can and plated in the usual way to determine the number of bacteria per cubic centimeter. The result of this showed 5,000 bacterial colonies per cubic centimeter.

"One can of the milk was immediately cooled to 50 degrees F. The other can was left uncooled, and both were placed in a refrigerator, the temperature of which was held constant at 50 degrees F.

After twenty-four hours samples were taken from each can and plates made to determine the number of bacteria. The cooled can gave a count of 31,000 bacteria per cubic centimeter, while the uncooled can gave a count of 11,500,000 bacteria per cubic centimeter. Milk in the uncooled can soured in thirty hours, while milk in the cooled can remained sweet four days.

"Results of this experiment show, first, that the bacterial growth in uncooled milk is enormous; second, that bacteria grow very slowly in milk held at 50 degrees F. or below; third, that placing uncooled milk in a refrigerator is practically useless; fourth, that the keeping qualities of milk are greatly increased if it is cooled to a proper temperature as soon as milked and then placed in a refrigerator, where it can be held at that temperature."

Dirty Hands.

Dr. R. E. Eccles, of the Michigan Department of Health, believes that the most important problem of the day is getting rid of dirty hands. He writes in a pamphlet recently issued from his department that "dirty hands are causing more deaths than bullets, poisons, railway accidents and earthquakes combined."

The dirty hands that do so much damage to the health and longevity of the human race are not the dirty hands that Willie and Susie have after making mud pies, or the sort Bill Jones brings home from the coal mine, or the kind that the farmer's hired man has when he comes in from the freshly plowed fields. That sort of dirt—mud and soil, coal dust and ashes, paint and varnish, are almost as harmless as the clothes we wear.

It is probable that there are foul and filthy hands invisibly dirty, that are by their owners kept perfumed with the odor of frangipani, ylang-ylang or musk, manicured till finger nails shine and every vestige of visible blackness has disappeared, and are kid-gloved besides. They wash, as they eat and sleep, under the guidance of a clock. Dirt is dangerous not so much when it is 'of the earth, earthy,' but because it is often far worse —excretions of the body. It is this unseen dirt that plays the mischief with human life, because it is alive and can multiply indefinitely. Because of this it can safely be asserted that the chief unintentional crime of our age is dirty hands—the sort of dirty hands which are

carriers for filth and disease germs. The pity of it is that the victims are not the dirty-handed sowers of disease, but those whom their disease-laden hands touch or whose food they prepare. All the striking cases in the literature concerning typhoid fever are cooks or cooks' helpers, bakers, dairy workers, etc., occupations involving the constant handling of substances which are excellent culture media for the typhoid bacillus. This disease is not the only one carried on dirty hands, for they have been found to disseminate dysentery, plague, cholera, influenza, spinal meningitis, and in certain localities a host of other diseases."

Fighting Tuberculosis.

Though medical science has not yet evolved a "cure" for consumption, as it has for many transmissable diseases, it has quite plainly demonstrated the nature of the disease, the manner of its transmission and the methods by which it may be prevented or suppressed. Phthisis is no longer a mysterious visitation to which certain persons are hopelessly doomed from their birth, or to which a large percentage of the population is necessarily fated to succumb. We now know certainly that it is preventable; that it may be escaped or overcome, and that its suppression is well within the range of possibility.

This is not so simple a problem as the suppression of such epidemic diseases as malaria or yellow fever, which have yielded instantly by the removal of the agencies by which they were communicated, or even of typhoid fever, which has been brought well under control. The tuberculous infection is so widespread and its channels of communication are so many and various that it offers no single point of attack. It is to be combated only by patient and persistent effort and by the co-operation of all classes and conditions.

It is this that makes the popular agitation upon the subject so important, keeping constantly before every one's mind the part which each person may take in the battle, in support of the efforts of medical men, sanitarians and social reformers, all of whom are working together for the common end. The three lines of effort are pathological, clinical and sociological: continued research in the pathology of tuberculosis as the basis of scientific treatment; clinical observation and experience in the care of the disease in its several stages, pointing the way not only to individual relief, but to the means of relief to be generally urged, including everything which relates to food, clothing, habits of life, the effects of climate or of occupation and the numerous other elements of personal hygiene; and finally, all these considerations as they affect large numbers of people in community and as they suggest common action for the general sanitary improvement.

The sympathy for their fellows which is characteristic of our working people and which constitutes the strength of organized labor could be in no way more effectively displayed than in a united effort against this unnecessary "plague" that has devastated so many of their families. The very best efforts of scientific men and serious students of social conditions, as well as of benevolent men and women, are concentrated upon the great work, with inspiring results and with increasing hopefulness. There cannot be any doubt that tuberculosis can be substantially eradicated; but it cannot be done by the scientific men alone, though they have to point out the way. The whole population is concerned and must learn to work together, each doing his own part and helping the others

to do theirs. Some day it will come to be recognized as great a disgrace to a community to acquiesce in the prevalence of consumption as it would be to accept the medieval plague as an aunavoidable visitation of Providence.

The Antiquity of Man.

The dominant feature of modern thought is hope, says the British Medical Journal—hope for to-morrow, hope for the future, anticipation of something better, some improvement, or, at the very least, some change. It is the keynote of progress and the certain safeguard against decadence. To read the future is the dearest wish of early life, but as the years pass anticipation yields to action and later to reflection—the solace of old age. These two mental attitudes of youth and age, seemingly diametrically opposite, have yet much in common ; both are constructive, and both deal with material which is imperfect, in the one case because it is unknown but conceivable, in the other because it is partly forgotten or its significance altered by the intervening years.

To science, a babe barely able to walk and read, the future promises everything, but there is much to learn of the past. The ultimate destiny of man may be the most fitting and important study, yet his primaeval origin is not without its lessons, for an accurate knowledge of the past is frequently a very safe guide to the future. Of man's recent past there is certain and reliable knowledge taking us back to five or even ten thousand years ago. We can trace in living races the most recent phase of man's existence, the advent and progress of civilization. We know that there was no essential difference 2,000 years ago—perhaps even 5,000 years ago—except that the balance then was in favor of barbarism. Of what may be termed the pre-barbaric states, however, we know but little. Of that dark period of storm and stress, when man was fighting to establish his place and supremacy amongst other animals, and especially, we may suppose, amongst the higher apes, by means little superior to their own, we have only occasional glimpses. To comparative anatomy we owe much of our scanty information concerning those times; to geology we owe more. It is curious to think of man leading a life akin to that of the lower animals, with undeveloped mind and ultra-primitive ideas. The contrast between the mental calibre of the present-day civilized and savage races may enable a vague idea to be formed of the intellectual ability of early man, in comparison with whom our lowest savage would appear gifted. The subject has formed a theme for writers of fiction, but more serious attempts have also been made to portray these wonderful transition stages in man's existence. A large amount of hypothesis is woven round some incontestable facts, founded on acute observation. The whole subject of palaeontology, indeed, is one which calls for the highest degree of scientific acumen. To reconstruct a colossal animal from a single tooth or to rebuild the social life of a tribe from a charred bone are the familiar examples of this wizard-like power. The story of the rocks, read in this way, possesses a charm all its own. The majestic creatures of the past fill us with admiration and astonishment, but chief interest devolves on the central figure, man, the creature of the geological yesterday.

Man's antiquity has formed the subject of much wordy dispute, but successive palaeontological discoveries have demonstrated the unjustifiable parsimony of our estimates of his past career. At one time ten thousand years was regarded as a generous allowance, but recent inves-

tigations have shown that ten times that might be nearer the truth. The latest find of undeniably human remains is that of Dr. Capitan and M. Peyrony in the Dordogne, and it is of more than ordinary importance, as it consists of a complete skeleton. It was found lying on its back and surrounded by numerous remains of various animals, such as bisons and deer, along with hammers, bone breakers and other implements. Appearances point to the body having been placed where it was found, and covered with stones, earth and branches. Later years increased the covering, which has accumulated undisturbed for, it is believed, twenty thousand years. Dr. Capitan's preliminary announcement* of the discovery is illustrated by an interesting photograph of the skeleton *in situ*. Along with M. Peyrony he has for many years been investigating the region in which the skeleton was found, and has been able to determine the existence of at least five successive epochs in the quaternary period, each with its distinct population. The present skeleton comes from the second earliest of these. Much valuable information will doubtless be gained when a complete examination of the remains has been made.

Probably of much older date is the historic Gibraltar skull, which has lately been subjected to a searching examination by Professor Keith. It appears to belong to a stage intermediate between palaeolithic man and transition forms such as *Pithecanthropus*. It is unmistakably human, and yet it displays several distinctly simian characters. Primitive as it is, however, and ancient as it may be, it is still a long way removed from the apes and man's primogenitor.

The secret of man's original descent is shrouded in the mists of the tertiary period. There we find the remains of manapes, of forms intermediate between man and the anthropoids, and of some even more closely allied to the former than to the latter. The now famous *Pithecanthropus erectus* is one of the most important links. Since its original discovery several expeditions have visited the East Indian Islands with the object of gleaning more knowledge, but unfortunately with comparatively insignificant results. In the successive years 1906 to 1908 Frau Selenka, Volz, and Branco severally attempted to shed more light on the matter, but without materially altering the already established facts. Several other forms have from time to time been regarded as lineal ancestors of man, such as the *Pliopithecus antiquus* found by Hofman in 1893, and the *Dryopithecus fontani* found by Harlé in 1898, but these have been proved to be more closely related to the gibbons than to man. The gibbon is the most primitive of living anthropoids, and it is believed that man and the gibbon arose from a common stock. *Pliopithecus* and *Dryopithecus*, though near relations of early man, cannot therefore be admitted among his ancestors. Von Branco considered that *Pithecanthropus* should be classed in the same category, and that the ancestor of man had branched off from the stock long before the existence of *Pithecanthropus*. Schlosser, however, while denying with von Branco the lineal ancestry of *Pithecanthropus*, sees in it a closer relationship to man than to the apes, and emphasizes this by including it in the family *Hominidae*. The cranium and femur are more like those of man than any other anthropoid except the gibbon, but the tooth does not show any particular resemblance either to that of man or the anthropoids. It might, however, be an abnormal human tooth, but never that of a gibbon, and in any case is too complicated to have been a developmental forerunner of the human

* In *La Nature*, December, 1909, pp. 50-51.

tooth. *Pithecanthropus erectus* resembles man in such essentially human characteristics as the upright gait, the almost straight hallux, the absence of cranial bosses, and the small size of the canine tooth, and in these Schlosser sees justification for his opinion.

Sanitary Groceries.

A sanitary grocery is one where fruit and vegetables, to be eaten in the raw condition or from the hand, are not exposed to the contaminating influences of dust, flies or other filth; where the fruit and vegetables are not exposed upon the sidewalk unprotected, nor placed upon the sidewalk to be polluted by dust and dirt or passing dogs; and where if the vegetables are to be kept sprinkled, impure water is not used for the purpose.

The walls and ceilings of the store should be kept clean, as should also the shelves and counters. A visit to the back room or storage department should show system and cleanliness. The back yard should be likewise. If a cellar is used, it should be sanitary clean and tidy; not a damp and mouldy place where food products are to be kept and putrefying germs find their way from the damp cellar and floor into the food products above.

The building should also be well lighted and ventilated. Toilets should be provided entirely separate from the store itself; means of ventilation being direct to the ventilating flue or outside of the building.

Screens should be provided for all windows to be opened, and for all doors. These should be made to fit, so that flies will not be admitted. During the fly season the store should be free from such.

The refrigerators should be clean and sanitary; not must nor slimy. The garbage and waste products should be removed frequently from the store to prevent drawing flies.

Fruit, vegetables, etc., should not be exposed in baskets on the floor where they may be polluted or are accessible to stray dogs. All dried fruits should be protected. The confectionery should be kept under glass or cover. Old newspapers should not be used for wrapping. The proprietor and clerks should be clean and tidy, and not the subjects of contagious diseases.

In the delivering of food products the grocery wagon should be so covered as to protect the food from the flies and street dirt.

This is largely a matter of education, and in a few years the public will wonder why they ever permitted the unsanitary conditions, which have prevailed in some grocery stores, meat markets, baking shops, etc.

The Prosperous Rat.

Experiment shows that it takes about 60 cents of wheat to feed a single rat for a year. The eggs, cheese, young chickens and squabs, which it prefers to wheat, increase proportionately the cost of its board.

Even if there were no more rats in this country than there are human beings, and if each rat consumed and spoiled only 25 cents worth of food in a year, the total cost in ten years would be staggering. As a matter of fact the rat population of most communities is at least five times that of the human. To this, moreover, must be added as many more mice, for the mouse is really a rat.

There are then, probably 50,000,000 rats in Canada, not including mice and the various wild rats that for the most part keep out of man's way. This means a yearly cost for food alone of $10,000,000.

To this must be added the damage they do in obtaining material for their

nests. The annual loss in this direction is largely a matter of guesswork. A reasonable and semi-official estimate, however, gives for Denmark $3,000,000 annually; for France $40,000,000; for Germany $50,000,000; for Great Britain $73,000,000; for the United States at least $100,000,000; and for Canada $10,000,000. Fifteen dollars a month is a loss reported from a single farm.

No wonder that the Departments of Agriculture in America, in Europe L'Association International pour la Destruction Rationelle des Rats, and a similar society in England are trying to rouse the public to an appreciation of the gravity of this problem.

The fact is that of all warm-blooded creatures, there are just two that are really dominant, successful, increasing in numbers and range, and able to maintain themselves anywhere in the world against all rivals. These two are man and the rat.

The genus homo and the genus mus go everywhere and eat everything. They are the two creatures that dwell in houses and travel in ships. Each drives its other rivals to the wall, but neither, except locally and for brief periods, has ever come near to exterminating the other. Civilized man has fought the common rat for two hundred years, and that battle is still drawn.

Trapping alone and even poison are rather to the advantage of the rats. To destroy from time to time three-quarters of the rats in a city only kills off the surplus population and makes life easy and food abundant for the rest. No matter how many are caught, there will always be plenty more.

The remnant, experienced and trap shy, will get their living from granary, pantry and chicken yard, will shun baits and survive. The only way to dispose of the last few individuals is to cut off absolutely their food supply and make them choose between certain starvation and the chance of poison or trap.

On this basis San Francisco carried on its campaign. Fifty thousand new metal garbage cans with tight metal covers wiped out as many feeding places. Eighty-seven inspectors saw to it that all poultry yards, bakeries, restaurants, wharves, stables, slaughter houses, grain bins and the like, were made ratproof with wire netting and cement, and induced the San Franciscoans to forego the convenient practice of throwing their edible refuse in the nearest vacant lot.

In general all unsanitary structures inhabited by either men or animals were condemned, all sewers repaired and made tight, and all cellar floors relaid with cement, to do away with a favorable nesting-place of vermin. An elaborate card catalogue recorded the conditions of every building in the city; nearly four hundred recalcitrant persons suffered arrest; there were upword of 80,000 abatements of nuisance. Altogether San Francisco became one of the cleanest cities in the world and one of the least popular with the whole tribe of vermin.

A rat's sight is not particularly good, but its smell is keen and its sense of location so perfect that it will run through its holes and galleries in pitch darkness at full speed. The great Cuvier used especially to admire the rat's tail, which, he said, has more muscles than the human hand. Careful experiments have proved the truth of the ancient belief that by letting down its tail and licking the end the rat extracts oil, milk, wine, molasses and other fluids from deep or narrow-necked vessels.

No single point illustrates better the sagacity of the rat than the way in which it eats an egg. It bites through the shell and chips off small fragments as neatly as a squirrel opens a nut, consumes the

entire contents without spilling a drop and then sits up and licks itself clean like a cat. Rats will steal the eggs from under a sitting hen; in Washington they carried off 75 dozen eggs which a commission merchant had incautiously stored in a wooden tub.

Their method of handling eggs is also characteristic. An egg is as large for a rat as a barrel for a man, and much more fragile. Yet there is evidence of the fact that they pass eggs along from one to another, although not probably, as has often been reported, by forming long lines like a bucket brigade.

The operations is naturally difficult to observe; but apparently it takes two rats to each egg. One holds the egg in its paws, passes it on to the other and then runs ahead to take it once more in its turn.

The same device seems to be employed to carry an egg downstairs, the rat that has the egg passing it to its companion, which stands on the step below. Going upstairs, however, at least in some cases, each rat puts its head between the fore paws and pushes the egg up with its hind feet. Such appears to be the general procedure.

The Costly Salute.

The subject of kissing is not to be dealt with lightly. The little old doggerel, sung upon every possible occasion in English music halls, with its catchy rhythm, is not to be carelessly followed. If you remember, it runs something as follows:

"O, my lovey, O my dovey, O, my duck, duck, duck,
If you love me you must have a little pluck, pluck, pluck.
So put your arms around me, kiss me once, twice, thrice,
For kissing may be naughty—but, by jingo, it is nice!"

Kissing may be nice. Kissing may or may not be naughty—authorities disagree. But kissing is dangerous—in more ways than one. Read the following:

Science made the first attack upon the kiss.

Several years ago at the International Tuberculosis Congress held in Paris, the subject of kissing was treated scientifically. Learned savants advanced formidable reasons why kissing should be abolished. At this congress it was asserted with vehemence by many of the learned ones present that kissing was but little short of criminal.

In Atlantic City not long afterwards Health Officer Somers made the kiss an object of official ukase. He held that 9 per cent. of all kisses were germ-laden, and he was backed by the chief inspector and the board of health. Notices condemning the kiss were thereupon placed in public places.

Recently a well-known French physician conducted a series of brilliant experiments aimed at the practice of placing two sets of lips together for even the most evanescent period. He enlisted the services of two men, one bearded and one shaven. He hired a girl to be kissed and had her lips carefully sterilized. And guess what was the result!

After each kiss had been administered a sterilized brush was passed over the girl's lips and dropped into a test tube, the top of which was sealed.

Four days later the tubes were opened. The first, taken from the shaven man, was speckled with dots showing colonies of yeast germs. These were practically harmless.

The second, taken from the bearded man, swarmed with microbes. There was a tubercle bacillus and a diphtheria germ. There were putrefactive germs, minute bits of food, a hair from a spider's leg, and all sorts of horrible things.

The young woman survived, but had her lips not been so carefully sterilized she might have become the victim of one of several diseases which could easily have cost her her life or have left her a helpless invalid.

This is one way in which kissing might prove fatal. Another was demonstrated only the other day.

Two young people, a man and a girl, were walking along in an apparently engrossing conversation. They reached the parting of their ways and parted. As the girl started across the street, however, the young man rushed after her, threw his arms about her and kissed her. Around the corner came an automobile. The chauffeur gave a startled warning honk, but it was too late. The machine struck the two, instantly killing the girl, and seriously injuring the man.

So you see that in more ways than one kissing is a menace to life.

Now regarding it as an expensive evil:

If Harry Thurston Peck, editor of the Bookman and professor of Latin at Columbia University, had never kissed Esther Quinn, as he is said to have done, he probably would not be at the present time involved in a breach of promise suit for $50,000. The first kiss, no doubt, was the mischief maker. Without a kiss no man can make any girl believe that he is madly in love with her, and it is usually a kiss that not only seals a vow but sets the imagination working. Mr. Peck's first kiss to Esther Quinn is costing him dear.

Ferdinand Pinney Earle would doubtless be insulted if his kisses were called anything but soul kisses. To class them in the same category with the common class of osculation might not please him. But soul kisses, or otherwise, they have resulted most detrimentally to him more times than there is time to tell, and according to report every woman who has ever kissed him has repented of her bargain and in the courts has bemoaned her mistake.

In New York former Fire Commissioner John J. Scannell had to appear in the courts to defend a suit brought by a pretty little woman, Mrs. Laura White by name, who wanted $15,000 for two kisses which she declared Mr. Scannell planted on her lips.

And they're terribly strict about kissing in New Haven, Conn.

Louis Manzine and his sweetheart were out one moonlight night upon the city green. Mr. Manzine was pressing a tender kiss upon the tempting lips so near his own when there appeared suddenly upon the scene a policeman. (Mind you, the girl was willing). The policeman interfered. Manzine put up a fight. Here is what it cost him:

Kiss, $5.

Resisting an officer of the law, $10.

Costs, $7.

Total, $22.

Patrolman Michael Riordan, of the Jersey City force, lost his position because of an ill-considered kiss. It was a dark night for him in more ways than one, when he met Mrs. Annie Hogan near the rubber woks!

Mrs. Hogan was pretty. Mrs. Hogan had lips to tempt a susceptible man, and Patrolman Michael Riordan yielded to temptation. And then Mrs. Hogan arose in her wrath and reported him. He was dismissed.

Abraham Entzway was stabbed with a pair of scissors while endeavoring to kiss a girl who worked beside him in a New York shop. She escaped the kiss because of her strenuous resistance, but was arrested and haled into court.

Magistrate Moss, however, when he discovered that she had only stabbed when in danger of being kissed, commended her, and told her that if she

should lose her position on account of the affair to come to him and he would get her another one. She, however, was retained, while the would-be kisser found himself jobless.

And because he kissed alluring Miss Daisy Hilton, Private J. F. Merritt of the Second Infantry, United States army, got thirty days in the guardhouse.

To say nothing of the time that kissing consumes.

Railroad officials are profligate in their stories of trains that have been delayed because of the continued osculation on the part of those about to be separated. It would be a hard-hearted official who would let a train pull out and leave a pretty girl who had her ticket and berth all engaged, just because she could not tear her lips away at the given time from those other lips that adored her.

Many the business man and woman who returns late from a protracted noon hour which has been spent in protestations of affections over a luncheon table and "last kisses" in sheltered nooks.

Many the husband who comes late to his office in the morning because of feeling impelled to turn back to the house after having once started for the train, in order to give his wife a last long kiss and tell her once again that she is the only woman in the world for him.

Have you not been shown clearly, by this time, the danger of kissing? Believing that you have been, and while on the subject you might like to know of several famous kisses that made history.

No more celebrated kiss was ever given than that bestowed in the gallery of Greenwich Palace on Nov. 22, 1581, by Queen Elizabeth upon the Duc d'Alencon. In the presence of Walsingham and Leicester she kissed his coarse lips, and placing her ring upon his finger presented him to her courtiers as their future master.

Another famous kiss was that given a butcher by Georgiana, Duchess of Devonshire. In 1874 Fox was contesting Westminster in the Whig interest. Amongst his keenest supporters was the beautiful duchess, who entered heart and soul into the spirit of the election, gaining many a vote for her protege by her winning ways. One man, however, a butcher, remained impervious. But the duchess was resolute and offered a kiss as a bribe. The bribe was irresistible, and she got her way.

A kiss which had a tragic sequel was that given by Prince Ferdinand of Bavaria to Princess Thryna, the near relation of a ruler of a neighboring state, where he was on a visit. The kiss was merely given as a salute—a heedless whim of a moment—but the princess' betrothed saw and took exception. Words came to blows, and the result was the breaking off of relations between the two states. Although hostilities only lasted six weeks, over 1,000 lives were sacrificed.

Which brings us back to our first contention—kissing is costly!

The Fly War.

A fly fighting committee of the American Civic Association at Washington has been formed to instruct the public how to fight the pest. It includes a number of well-known physicians.

The United States Department of Agriculture issues a booklet, with illustrations, showing farmers how to arrange their stables so that flies may not breed in them. The most important thing in stable management is to take care that the droppings are swept daily into a covered receptacle, where they are not exposed to the sunlight.

All over the country boards of health and tenement house commissions are warning people that the fly is the most

deadly enemy of public health in summer.

The sanitary authorities of England and other foreign countries are circulating similar information. In fact, there is a great world-wide crusade against the filthy fly.

The Washington fly-fighting committee gives some particularly good hints for exterminating flies:

"To clear rooms of flies carbolic acid may be used as follows: Heat a shovel or any similar article and drop thereon twenty drops of carbolic acid. The vapor kills the flies.

"A cheap and perfectly reliable fly poison, one which is not dangerous to human life, is bichromate of potash in solution. Dissolve one drachm in two ounces of water and add a little sugar. Put some of this solution in shallow dishes and distribute them about the house.

"Sticky fly paper, traps and liquid poisons are among the things to use in killing flies, but the latest, cheapest and best is a solution of formalin or formaldehyde in water. A spoonful of this liquid put into a quarter of a pint of water and exposed in the room will be enough to kill all the flies.

"To quickly clear the room where there are many flies, burn pyrethrum powder in the room. This stupefies the flies and they may then be swept up and burned.

"If there are flies in the dining-room of your hotel, restaurant or boarding house, complain to the proprietor, that the premises are not clean."

The Merchants' Association of New York has issued a pamphlet, entitled, "The House-fly At the Bar," in which the evils done by the insect are ably presented.

The association has gathered opinions on the deadliness of the house fly from seventy health officers in different parts of the United States. Their opinions are unanimous. They all agree that the fly is one of the greatest of all dangers to public health. Three-quarters of them mention the specific fact that the fly is the chief agent for spreading typhoid fever.

A report made for the association by Dr. Daniel D. Jackson on "The Transmission of Disease by Flies" shows that a deplorable condition of affairs exists in New York. All over the city sewage and garbage—material which serves as breeding ground for flies—are exposed in vast quantities, and all summer long the flies are carrying disease and filth from this material to the hotels, restaurants and homes of the city.

"Regarded in the light of recent knowledge," says Dr. Jackson, "the fly is more dangerous than the tiger or the cobra. Worse than that, he is, at least in our climate, much more to be feared than the mosquito, and may easily be classed as the most dangerous animal on earth.

"It has been for some time thoroughly well demonstrated that he is one of the chief agencies in the spread of Asiatic cholera. We now know him to be the source of a high percentage of the cases of typhoid fever and the chief disseminator of diarrhoeal diseases, from which about 7,000 children die annually in New York."

Dr. John B. Huber states in another report to the association that flies are largely responsible for spreading tuberculosis. A gruesome but effective series of illustrations shows how the insects convey the disease germs from the poor consumptive's sputum to the dinner table.

Experiments by the Agricultural Experiment Station at Storres, Conn., show that one fly carries 6,600,000 bacteria at once.

The Chicago Department of Health issues a brief and well summarized list of rules for protection against flies:

"Screen all food and keep flies away from it.

"Keep the streets clean.

"Keep stable manure—breeding place for flies—in a vault or pit or screened enclosure, and sprinkle its surface with chloride of lime.

"Quickly cover up food after a meal and bury or burn table refuse.

"Keep damp cloths near meat dishes, milk jugs and other food receptacles.

"Burn pyrthrum powder in the house. It will kill most of the flies, and those it does not will fall stunned, when they may be swept up and burned. Sticky fly papers are a second-rate palliative.

"Remember that the exposure of any kind of refuse near a dwelling furnishes a breeding place for flies, and if food is exposed flies will deposit germs upon it."

Nevertheless, a report by Dr. Alice Hamilton shows that in the tenement houses of Chicago the breeding places of the flies are exposed so that insects can carry the disease germs to the food of the people.

The Mississippi State Board of Health adopts the most novel method of combating the fly. It issues a cartoon entitled "Three Dangerous Toughs."

The three are the morphine bottle, the house fly and the malarial mosquito. The fly is the largest, and occupies the central position.

The Tennessee State Board of Health also resorts to illustration in the war on the fly. It issues a large sheet with letter press in red and illustrations in blue. The illustrations show the flies swarming over all kinds of filth and then contaminating the food of human beings.

The letter press gives practical instructions for guarding against flies. Human interest is added to this document by its lively style. "Flies are fond of feasting on tuberculous sputum," it says.

The Detroit Health Department has issued an effectively illustrated booklet upon the house fly as the cause of death and disease.

The Department of Labor of New Jersey has issued an order that all bakeries should be screened, to prevent the access of house flies to the bread.

In Georgia, Louisiana and California an active anti-fly campaign is being carried on.

The United States Government, its chief entomologist, Dr. L. O. Howard, has given many hints for fighting flies.

In the first place the house should be screened. Some flies will get in, and a wire fly broom will be found very effective in disposing of them.

A small piece of blotting paper, soaked in a mixture of water, arsenic and sugar, and pressed over the bottom of a saucer so as to line the receptacle neatly, will attract flies and will kill every one that sucks at it. But it is deadly to other creatures and must not be placed where children can reach it.

Remember that flies love the light and that keeping food out of the sunlight is to some extent a protection against them.

Fly paper hung from the chandelier and other high parts of the room will catch more than in any other place.

Flies love filth and hate pleasant things. Hence flowers, especially strong smelling ones, such as mignonette and aromatic plants, will drive them away.

A Caravan Mission of Health.

Everyone nowadays has a mission; it is an age of "crusades" and philanthropic people vie with each other in devising new means of attracting attention. The Women's Imperial Health Association

of Great Britain, the president of which is Muriel Viscountess Helmsley, is sending caravans about the country from which lectures and demonstrations on health, illustrated by biograph pictures and views are being delivered by competent lecturers in the towns and villages of England. The first of these caravans, happily named "The Aurora," started from the Botanic Gardens, Regent's Park, on Saturday, August 20th, 1910, at 12.30. Its departure was christened with a flask of pure water by Miss Lena Ashwell. The Aurora then forthwith proceeded up the Thames Valley on its way to Bath. It is the object of the association to deal with the health question at its foundation; it therefore intends to teach the mothers of England how to rear and nurture their children that they may become strong and healthy citizens. A special appeal will be made to young girls in order that they may better fulfil the duties which matrimony entails. It is emphatically declared that the association has no fads, no axes to grind, and that it is not "anti" anything nor "pro" anybody. We are glad to know this, for these health missions so often degenerate into the propagation of fads, the dissemination of "anti" ideas and the glorification of individuals. The names of Sir Lauder Brunton, Sir Anderson Critchett, Sir William Bennett, Dr. J. Mitchell Bruce, Mr. McAdam Eccles, Dr. Kelynack, and Mrs. Scharlieb, on the list of vice-presidents, form a guarantee to the medical profession that the association will be pursued in a spirit of broad philanthropy, and that its work will be conducted under the guidance of scientific knowledge.

Blame the Fly.

The fly is blamed for the peregrinations of the germ of tuberculosis. A little germ is sitting disconsolate somewhere, without a job, and no friends to support him. Along comes the fly.

"Get aboard," says the fly, all the while buzzing cheerily.

The germ mounts the fly's back and is carried to some lunch stand. Together the fly and the germ promenade on a "weine," perhaps. Before the germ can remount, a customer of the stand arrives to get a sandwich. With his "weine" he gets a germ to boot.

Unless indigestion beats the germ to it, the customer may die of tuberculosis. Meanwhile the fly is going his rounds, humming to himself and joyously throwing business in the undertaker's way.

Just to let the ladies in on this picture of the fly's lethal activities, it may be said that he samples all the candy and ice cream on his beat, too. In fact, no bacillus, germ or microbe need want for a friend and helper during the fly season.

Unfortunately, the old jingle about the "bugs which have other bugs to bite 'em" contains more poetry than truth. The germs, sad to say, do not hurt the fly. Maybe it's gratitude that deters them, but anyway they never affect the fly's lungs, or give him tetanus, or afflict him with a fever or headache or anything like that.

Screens, therefore, appear to be the only safeguard. As a further protection may be superadded kerosene. It will not be necessary to catch the fly in order to apply the oil. Simply spray whatever refuse might afford the fly a nest for her young. As she prefers manure, sweepings from stable and decaying vegetation, those might be lubricated first.

Every time you prevent a fly from hatching you reduce the visible supply by about 284,000,000,000. A healthy fly, not an advocate of race suicide, will lay some 62,000,000,000 eggs a week, work-

ing eight hours a day. Not taking account of twin yolks every egg will be a fly. The females of this brood will come right back in proportion.

When it is understood that every one of these flies will make friends with from two six million germs in a single season, the reason for screens will become apparent.

The figures given here are merely estimates based on the performances of one pet. A French savant is now holding the watch on a fly and will be ready shortly with an accurate statement.

Healthful In Panama.

When a bold prophet announced a few years ago that the Isthmus of Panama was being converted into a health resort people smiled, said they hoped he was right, and then forgot it. To-day that forecast is almost fulfilled. Yellow fever has been completely banished from the region, and the malignant forms of malaria are much less prevalent than pneumonia is in the north. Natives of tropical America have always been immune to the attacks of both these maladies. When the man from the north expresses fear of fever the native shrugs his shoulders and says he prefers it to the danger of pneumonia. Now that the fevers have been conquered in Panama the resident of that place has a sardonic laugh on the northerners who have made no headway against pneumonia at home.

Under the skilful direction of Colonel Gorgas, M.D., sanitary conditions in the Canal Zone and vicinity have been made almost perfect. The food supply is abundant and pure, and the canal builders of every class are well housed in buildings from which the few remaining mosquitoes are carefully excluded. By cutting the jungle back several hundred yards from all buildings and prosecuting a vigorous campaign with petroleum about their breeding places, the authorities have made mosquitoes a kind of curiosity in the zone. Proof is now conclusive that the months of 1903 to 1906, which were devoted almost exclusively to sanitary endeavor, were not wasted, and the dirt has been made to fly all the faster since then by reason of the human security this labor procured.

Editorial

The Milk Commission.

On the tenth of June, 1908, it was resolved at a meeting of the executive council of the Canadian Medical Association at Ottawa that a Commission be appointed whose duty it would be to act when possible in conjunction with the various health boards of Canada in enquiring into the condition of milk supplies, and in endeavoring to secure such legislation as should warrant the Canadian Medical Association in taking steps to obtain for Canadians an uncontaminated product.

The Commission was appointed under the chairmanship of Dr. Charles J. C. O. Hastings, of Toronto, and has endeavored, so far, to ascertain the extent to which life is menaced by market milk; considering in this the relation of milk to infant mortality, the role played by milk in the spread of communicable disease—particularly tuberculosis—the meaning of certified milk and the effect of pasteurization on milk and the bacteria in milk.

As stated in the Commission's 1910 report, attention was first drawn to dangers lurking in milk—in an attempt to ascertain causes for the large existing infant mortality, when it was found that 90 per cent. of deaths among children were from the ranks of hand-fed. It became plain to the Commission after thorough investigation along these lines that, in the great majority of cases, gastro-intestinal disease is but another name for milk poisoning. It was further noted that where market milk had been replaced by certified and pasteurized milk the infant mortality fell off nearly 50 per cent.

In regard to the role played by milk in the spread of communicable diseases, over five hundred epidemics were traced directly to milk supplies. And it was demonstrated by the Commission beyond question that the germ of tuberculosis exists in children to an alarming extent at the period when milk constitutes their principal article of diet.

The report says that until recent years it was thought that tuberculosis was contracted by inhalation, but it is now known that in the vast majority of cases the germs are taken into the stomach with either food or drink, and pass into the bowels, where they either set up local disturbance or penetrating the mucous membrane are conveyed into the main lymph stream from which they are taken to the blood, and thence to the right side of the heart, thence to the lung, where they are filtered out by the wonderful network of vessels in that organ. Here they may lie dormant until the vitality of the parts is lowered by some inflammation, when they gain the ascendancy over resisting forces of nature, and the host becomes a victim of consumption.

Special attention is drawn in the Milk Commission's report to the preponderance of all pathogenic germs in gravity cream and butter. And the assertion is made with authority that the average market milk, unpasteurized, with its products butter and cream, is to-day the most important cause tolerated by civilization for preventable disease, suffering and death.

Our Commission has therefore enacted that milk, in order to limit its disease-

carrying capacity and merit certification, shall come up to a standard and be obtained by observance of rules which require the herd product to contain 12.13 per cent. of total solids, of which 3½-4½ shall be butter-fat, without coloring matter, preservatives or other foreign substances. It shall be free from blood, pus or disease-producing organisms, from disagreeable odors and tastes, and shall not have been heated in any way, nor frozen. It shall be derived only from cows which have been tuberculin tested by a veterinarian of the Commission before entering the herd, and have been found healthy, and which shall have been tested every six months thereafter. It shall have been cooled to 45 degrees Fahrenheit within one-half hour after milking, and shall be kept at not higher than 45 degrees Fahrenheit, until delivered; and shall not be more than 24 hours old when it reaches the consumer. It shall not contain during the months of June, July, August and September more than 10,000 bacteria per cubic centimeter, as shown by a forty-eight-hour culture on standard nutrient agar medium at 37 degrees centigrade, nor in the remaining months of the year more than 5,000 bacteria per cubic centimeter as demonstrated by the same tests. And a veterinary inspector and physician of the Commission shall each month inspect the herd, the health of the employees, and the hygienic conditions of the dairy generally.

In order that this standard might be obtained and these rules followed, the Commission has further drawn up and distributed a set of clear and reasonable recommendations dealing with the care of such farm essentials as the barnyard, the stables, the dairy, the water supply, the animals and the employees, supplemented by expert advice as to the practice of economy in farm management and the production of milk for pasteurization.

Pasteurization is defined, in connection with careful inspection of the source of supply, as the heating of milk to a temperature of 140 degrees Fahrenheit, holding at that for thirty minutes, immediate refrigeration to from 40 to 45 degrees Fahrenheit, and keeping at that until delivered to the consumer. This, as far as is known, neither changes the taste, the chemical composition, nor the ferments of the milk, but kills all the bacteria that are found and feared in milk.

The Milk Commission of the Canadian Medical Association is thus doing a great, philanthropic and patriotic work, which if accompanied and followed by popular approval of a practical nature in federal, provincial and municipal legislation will demonstrate to the world that human life in Canada at least is worthy of as much governmental consideration as farm stock and agriculture.

Inter Alia.

Our readers will note that name of this publication has been reversed from The Canadian Therapeutist and Sanitary Engineer (incorporating The Canadian Journal of Public Health) to The Public Health Journal of Canada (incorporating The Canadian Therapeutist and Sanitary Engineer). This change has come into effect as the result of the formation of the Canadian Public Health Association and our election—as The Public Health Journal of Canada—to the official organ position in that association.

* * *

The object of the Canadian Public Health Association is the development of the science and art of general prophylaxis with promotion of social welfare, in judicious conservation of natural resources, popularization of eugenics and

more effective national and international co-operation along all lines of public health.

* * *

Membership in this association is classed as either active or associate. Active membership gives the right to vote, to hold office, and to receive free the transactions and official journal of the association. It may be accorded only to those who have been, for a period of at least one year, practically engaged in the technical branches of public health work; to those who have been, for a period of at least one year, on the executive or technical staffs of the Federal, Provincial, District, County of Municipal Government departments dealing with phases of public health; and to associate members, who for three consecutive years have maintained associate membership or have become eligible under preceding provisions. Associate membership gives the right to vote on all matters except the election of officers and administrative questions; to hold offices other than administrative, and to receive the transactions and official journal of the association without cost. It may be accorded to any person not eligible for active membership.

* * *

The score card system of grading dairies which was originated by the United States government, provides that each dairy shall be graded on a percentage of 100 on two main divisions, equipment and methods. There are many sub-divisions under each of these two main heads, and every dairy is required to make a total score of 60 points.

* * *

Points are allowed for each of the 32 different things which an inspector is required to examine. For example, 6 points are allowed for the water. If the inspector finds that the water is both clean and fresh he may give the dairy a perfect mark.

* * *

There are 100 points allowed to every dairy for the equipment. The same number of points are allowed for the methods used. The two totals are averaged, and if the result falls below 60 the dairyman will be refused a license by the city health department.

* * *

The three main points considered under equipments are the cows, the stable and the milk room. There are many little points that must be considered under each of these heads. For example, the milk room which has hot water and steam is graded 3 points. Any dairy without hot water in the milk room loses these three points.

* * *

Under the head of methods are such points as the proper cooling of the milk, the transportation, the storing of the milk and many other points which may seem trivial in themselves, but all of which go toward improving the sanitary condition.

* * *

"Sugar babies" are numerous in congested districts where the very poor live.

* * *

To be a sugar baby sounds nice, but it is very bad for the baby. The sugar babies are the dead sea fruit of baby land.

* * *

Sugar babies are fat and until their "sweetness" develops to a certain stage they are not unfair to look upon, though their complexions and general appearance is always suspicious.

* * *

The sugar babies are those whose parents have not been able to buy for them

the proper kind of milk. Instead, they have been fed on certain so-called condensed milks, and other preparations, which fail to nourish the baby. Some of these foods merely make the baby fat for a time and then it becomes sick.

* * *

Often its face and body break out with sores and a rash. Its stomach is worn as much as that of an old man or woman. The fat soon fades away and the face becomes peaked and old. The fermentation that has gone on in the intestines has made the baby old.

* * *

This is why one sees so many babies in congested districts who look as if they were so old that they were tired of life.

* * *

A city of tents on the outskirts of St. Louis is at present inhabited by babies, gathered from the congested section of the city, who are being given scientific care from early morning until late at night.

* * *

The idea is an experiment of the Pure Milk Commission. Trained nurses were provided, who sought the children in their homes, and had them conveyed to the tents, where all day long they breathe pure air, eat wholesome food, and are cared for in the most approved and sanitary manner.

* * *

The parents also are being instructed in the care of babies, and informed about obtaining the pure milk provided by the Commission. Pamphlets in Yiddish, German, Italian, Polish and English are published for such instruction, in the plainest of language devoid of all technicalities.

* * *

The use of wet and sloppy malt from breweries to feed cows increases the acidity of the milk and attracts more flies than any other refuse around a dairy.

* * *

"Impure milk," says Nathan Straus, of New York, "is the most terrible foe of humanity, all the more because it gives no outward sign of danger. I consider pasteurization of the milk supply—and the great majority of the scientific world agrees with me—one of the most important weapons in fighting disease. Unfortunately there still exists great ignorance of the danger that lurks in milk."

* * *

Pure milk is one of the most nutritious and cheapest of foods, but, being a perfect medium for the propagation of disease germs, it becomes a source of danger, especially in infant feeding.

* * *

It is proposed to educate the public as to the value of dairy scores, so that they will co-operate with the Milk Commission in the effort to better the milk supplies by patronizing the best dairymen and shunning those who fall below the Commission's standard.

* * *

A milkman collecting empty bottles often gets some from a home wherein some one has an infectious disease. The bottles probably have not been properly disinfected. The milkman gets the germs on his hands, and transmits them to the next bottle of milk he delivers. Thus the germs are spread.

* * *

Desiring to reduce the mortality rate among infants the Michigan State Dairy and Food Commissioner has sent out sixteen chemists, whose duty is to inspect dairies and the supply of milk in many of the larger cities. The workers are under the supervision of the State Chem-

ist, and the work is being handled along the lines of education.

* * *

One unclean farm with two or three cows, and ignorant, careless workmen can do more harm in supplying city customers than half a dozen good dairies can compensate for.

* * *

Fine appearing dairy farm buildings do not mislead good inspectors when they begin work on the details inside. "Nosing around" is about the best name for the process of inspection. It's "How do you clean your cans?" "How do you cool your milk?" "What do you feed?" "Is your barnyard clean?" "How do you strain the milk?" "What sort of transportation have you?" "When was the tuberculin test applied?" and so on.

* * *

The inspectors peer into cans, scrape the seams, try to detect lurking telltale odors and dip into cooling tanks with thermometers. They count the number of window panes, measure their size and measure the barn and figure up its air space in cubic feet.

* * *

There must be a certain amount of air and light per cow if the stable is to receive a perfect score. Cobwebs on the walls and ceilings, dirt on the windows, litter on the floors, dirt on the cows, especially on the udders, detract much from the score. Even the kind of stall and manger are considered.

* * *

Our standards of to-day are very different from those of our fathers and those of our grandfathers. What was perfectly legitimate for them would be absolute folly for us.

* * *

This is all because the discoveries of scientists have established new conditions. Five or ten years ago it was considered all right to milk cows in stables, surrounded by what we term disease-breeding conditions. No thought was given to the flies and other insects, or to the condition of the cow. Now the bacteriologist is able to demonstrate his theories in the laboratories. He has discovered the existence of germs, even under conditions that seemed sanitary under old methods. He has shown the means whereby the objections can be remedied.

* * *

Our grandfathers' standards were a mere matter of opinion. Our standards are a matter of fact.

* * *

Milk was once regarded as the "cup of purity," but to-day we do not always know what we are getting when we get milk.

* * *

There are two things which have always stood foremost. The first is a cup of cold water. This has been taken as the essence of cleanliness, of cheer. Now we know that the cup of cold water may be a cup of death. The cup of milk was regarded as the cup of purity, because it was not only a fluid to quench our thirst, but a well-balanced food to nourish the body.

* * *

Now there is always suspicion cast upon the cup of milk. It may be adulterated, may have been produced or handled under unsanitary conditions.

* * *

People always get just what they demand. If they want dirty, unsanitary milk, they get it. If they demand clean milk they will get it.

* * *

We laugh at the Mexican milkmen,

who drive their cows to town and milk in front of each customer's house the amount he happens to want, but the system has probably prevented a great deal of illness. Nature's method, you see, is immediate delivery of the milk, but that's impossible. What we can do, however, is to enforce delivery within a period that prevents a great deal of deterioration. No milk ought to be delivered as good milk more than twelve hours after it comes from the cow. If kept cool, it won't be sour for some time after that, but at the same time it won't be fit for the use of babies. The germs in it will have had too long a time to develop. If an inspector called at every dairy after milking time and placed a seal on the can stating the time of milking, this matter could be regulated. Milk kept longer than the limit could be sold, but it should be labelled in such a way that we would know it mustn't be given to children.

* * *

Time was when the fly was considered just an ordinary nuisance, to be reckoned with or not, at discretion; but today it is pronounced the chief agent in the spread of tuberculosis, typhoid fever and other deadly ills of humanity.

* * *

We cannot plead ignorance of its baneful work, since it has been publicly arraigned for several years; but most of us do not stop to think of its constant transit from disease-breeding spots to our kitchens, our dining-rooms—our selves.

* * *

It is not a pleasant subject for contemplation or observation, but every housekeeper has had occasion to fight the invader in an attack upon a freshly-made cake or other dainty for family consumption, and she can only faintly guess at its last abiding place.

The fly has no notions of fastidiousness and comes straight to our homes from the most unwholesome, noxious places.

* * *

With all doors and windows carefully screened and a determination to maintain no possible breeding-place about her own domain, to leave nothing in the way of food uncovered, a woman can make effective, individual resistance.

* * *

And she can further note that whatever articles of food she purchases at a grocery or elsewhere are well screened. They are not always protected, and the story need not be elaborated. Bread, bakers' supplies, confections, fruit—the list is endless; the deadly fly feast upon them all, and we come next!

* * *

Presumably in the years to come when we have grown wiser, more healthful and happier, less tolerant of germs, bacteria and their ilk, we will wonder that we so long tolerated this blot on advanced methods of life.

* * *

Viewed simply in the light of a common nuisance we will note its last flight with immense satisfaction, and pride ourselves upon the small part we may have taken in the work.

* * *

While we are looking in the clouds and aiming at a start for great performances, we sometimes miss the essential facts, the little necessities of daily life that somebody must care for if our best interests are to be served.

* * *

It is not particularly high-sounding or mighty, this crusade against the fly, but it is at our doorstep, and the fight is weakened by any individual failure to enlist.

Library and Laboratory

Suggestions in Infantile Paralysis: Watch the diet, giving only reasonable quantities of wholesome, nutritious food, especially avoiding anything likely to upset the stomach, poor milk, unripe fruit or vegetables if they have been exposed to dust.

"Second—Watch exercise, preventing any excessive effort of fatigue even at play, particularly in the sun and in hot weather.

"Third—Watch the bowels; avoiding constipating foods or sluggishness of the bowels from any cause. Secure by treatment if need be free daily evacuations.

"Fourth—Watch the children's playmates and to avoid even distant association with other children sick with this disease or with anything resembling it; or with members, including adults, of families in which the disease exists.

"Fifth—Watch the sick children themselves. Confine them to their own premises; destroy or disinfect the discharges of the throat, nose, bladder and bowels; prevent their association with anyone but an attendant who does nothing but care for them; in the case of death, allow a private funeral only.

"Sixth—In the event of any child showing symptoms which are usual to the beginning of an attack of poliomyelitis (fever, headache, pain, constipation, vomiting), remember that, while these symptoms may mean nothing but a passing disturbance, they may be the first stages of poliomyelitis; call a physician at once, and, meantime, keep the child quiet. If the child seems to recover almost wholly in two or four days, do not remit watchfulness, for in poliomyelitis the initial symptoms, after lasting two or four days, often disappear for a day or two, to be followed then by a return of the symptoms and paralysis.

"Seventh—We are still far from knowing all that we should of poliomyelitis, although we have learned a great deal since last year. The study of the internal organs of patients who have died of the disease is essential to further progress. It should be regarded as the duty of all good citizens to allow such studies to be made in case of death.

* * *

"*The Health of the City*," by Hollis Godfrey. Houghton, Mifflin & Co., Boston: To every intelligent citizen—for it is the hallmark of the intelligent citizen to be concerned with civic problems—this book will prove intensely interesting. Few contemporary topics in this era of city planning are so pressing or are attracting so much attention as sanitation to conserve the health of city dwellers. Mr. Godfrey, who is well known for his work in popular science, has been making a study of such questions as city air, water, ice, milk, food, waste, plumbing, housing, noise, etc., and has come to be an authority in this field. "The Health of the City" brings together the results of his observations. The chapter on "City Water and City Waste" is especially timely in view of the fact that many cities are now struggling with this particular phase of city planning. Taking as his slogan, "A water supply which has been purified by the best methods known to-day is the right of every citizen," he asserts that less national interest has been taken in the problems of

public water supply and the disposal of sewage by the United States than by all other civilized countries. Here, quantity of water has been the first step, and quality, when considered at all, the second. He elaborates the various methods used for filtration of water, and takes occasion to emphasize the menace of the family filter, imposed on the public by manufacturers who know that it is a scientific impossibility for the household filter to remove bacteria. In belief in their efficiency in time of epidemic lies the peril. The only safe recourse is the boiling of drinking water, but he adds, "One point should be made clear—individual protection can never possess a fraction of the value that belongs to municipal control any more than the individual fire extinguisher can compete with the city fire department." The dependence of the people on municipal provision is well expressed. "The teeming thousands in the narrow ways receive one common food, the city water."

Mr. Godfrey apparently inclines to the type of filtration plant known as the mechanical filter. "For the last ten years the growth in number of plants of this type has been remarkable. The mechanical filter differs greatly from the continuous filter. It delivers from fifty to one hundred times the quantity of water, and is correspondingly reduced in size. A single continuous filter may occupy an acre, while half a dozen mechanical filters may be installed in less than a quarter of that space. The former device recognizes as a cardinal principle the keeping intact of the surface of the filter where the bacterial life is strained out in the close upper layers. The latter accomplishes its work by the addition of a chemical, whose action on meeting the water is such as to engulf all matters held in suspension, including bacteria, thus forming comparatively large masses, which can be filtered without difficulty."

He speaks also of a method of sterilization by the use of the chlorine of bleaching powder: "The development of this latter chemical process for the purifying of water has proved one of the most interesting developments of recent years. It has been shown that the chemical disinfecting of water gives a very high degree of bacterial purification at a very low cost. In fact, the entire water supply of Jersey city, N.J., has been treated in this way for over a year. Properly controlled, there seems to be no evidence that the addition of bleaching powder in any way injures the water. Such a process should be excellent for high-grade supplies, where it is desired to remove even traces of impurities. It should be especially satisfactory with good unfiltered water from protected watersheds."

Of the necessity of municipal control and protection of watersheds he speaks emphatically, terming it the "first point in the chain of defence," instancing that provision by Massachusetts which forces neighboring towns to install sewage disposal plants for the protection of towns and cities lower down on the watershed.

Of the methods of caring for city waste he cites with approval that of sewage farming as conducted by Pasadena, Cal., "where walnuts, a crop safe from bacterial infection because of their shell, and free from all clogging of the porous soil, have been grown with profitable results. A substantial profit has been made year by year, and from the surplus the original cost of the land is rapidly being paid off." "No crop should be raised which is to be eaten raw, and preferably no crop intended for human consumption."

Of the important part played in the city's welfare by the sanitary experts Mr.

Godfrey speaks in no uncertain terms: "To guard the purity of the common water and to insure safe methods of sewage disposal is a great task, for without such guardianship grave and deadly danger is at the city's side. * * * To make the city habitable, to increase the efficiency of the state through the better health of its citizens—what task is higher than this great labor for the common good? On the man in control of the water system or the sewage plant rests the success or failure of many measures planned for the public weal. In the solution of that great problem in applied science, the government of the city, no man must bear a greater responsibility than the sanitary engineer. Such civic interest should be awakened in every community as will demand that the guardians of our public health shall be rightly trained, wise and free. Above all, free—since freedom from political control, from jealousies and narrowness, must be secured in order that full power may be given to the guardians of the public health to keep up the fight until the day when the final conquest comes."

* * *

Report and History of the Women's College Hospital Dispensary, Toronto: Dr. Jennie Gray writes in her recent Report and History of the Women's College Hospital Dispensary, Toronto:—

"In the year 1896 a student, who was very deeply impressed with the fact that sick women ought to be able to consult physicians of their own sex if they so desired, began to advocate the opening of a dispensary for women and children in connection with the Ontario Medical College for Women. The idea was taken up slowly at first, it being felt that Toronto was hardly ready for such a movement. However, through the sincere and earnest conviction of this student, now Dr. Anna McFee, of New York City, efforts were presently made to bring this about.

"The officers of the Mission, corner St. David and Sackville Streets, when they heard of this project, very kindly offered the use of two of their rooms, with heat and light, for dispensary purposes, free of charge.

"The dispensary was opened Feb. 3, 1898. At first three clinics a week were held. The students did the dispensing and helped in every way possible, and it did not take many weeks to show conclusively that Toronto was not only ready, but anxious, for this privilege, and many were the expressions of deep gratitude uttered by those who availed themselves of this means of relief and very soon all doubts of the success of the undertaking were swept away.

"In a few months the rooms were crowded and it was clearly seen that the accommodation was inadequate, and we were by our numbers inconveniencing the mission workers.

"It was then found possible to rent the basement of the college building, and the faculty of the Women's College took an oversight of the dispensary and made it a part of its work, the special management being entrusted to dispensary board, composed of representatives of the faculty and the acting medical staff.

"The students received training in dispensing, in obstetrical work through the out patient obstetrical department, in gynecology, as well as in general medicine and surgery.

"The opening of Toronto University to women for the study of medicine caused the closing of the Women's Medical College some four years ago. As the college building was to be sold and we were too near the General Hospital

for a proper division of the city for dispensary work we decided to move down to the corner of Parliament and Queen Streets. This move took place in February, 1908. From necessity the attendance of students has been small, but the relief work has gone steadily on.

"We now have a new building at 18 Seaton Street, where a furnished room is provided for a fifth year medical student who can be a very great assistance in following up the cases outside.

"Those suffering from diseases peculiar to women have expressed special appreciation of this means of helping the sick poor. That there is always in our midst a number of timid retiring poor ones who would suffer death almost or quite rather than seek relief at a public dispensary where men attend is an actual fact. Many times have we been glad to have the power to help those shrinking ones, and many are the words of thanks uttered, that there is a place where only women are where women may get medical advice.

* * *

March's Thesaurus. (T. J. Ford & Co., 303 Church St., Toronto, Canada.) This work which resembles an unabridged dictionary in size, because it contains the whole living language — no obsolete words—is both a term-finder, word-finder, and a dictionary, serving several purposes.

The English language is so rich that for every fact and feeling there is an exact word. Now, if you know the word you need you can find its meaning in a good dictionary, but if your memory does not supply it, you will not know where to look for it, in which event your dictionary becomes useless to you.

But March's Thesaurus will refer you promptly to the very best word to express any conceivable idea, and will give you every term relating to it, in a group, whether the term be a word, phrase or saying—a popular expression or a vivid quotation from the tongue or pen of genius.

* * *

The Production and Handling of Clean Milk: That those interested in the production and handling of milk are honestly trying to avail themselves of all knowledge concerning the subject is shown by the issuance, within a year after the publication of its first edition, of a second edition of a book containing much valuable information on the matter. This book, published by the William R. Jenkins Company, is by Dr. Kenelm Winslow, though it contains chapters on the "Essentials of Milk Bacteriology," by Dr. H. W. Hill. It is called "The Production and Handling of Clean Milk," and gives practical advice to veterinary, agricultural and dairy students and to health officers. It is in short a text book on practical milk inspection and dairy hygiene.

An interesting sidelight on the rapid advance of knowledge concerning the subject is shown in the author's preface, in which he states that even in the short interval which has elapsed since the first edition appeared, the changes have been such as to make it necessary for him to rewrite and expand many of the chapters.

Open Mail

To the Editor of the Public Health Journal of Canada.

Lindsay's Ozone Plant.

Dear Sir :

In reply to your enquiry regarding the ozone process of water purification now in use in Lindasy, Ont., I would say that there is a great improvement in the quality of our water since the installation of the ozone plant. Before the installation of this plant the filtration bed in use was found by expert examination under direction of the local board of health to be totally inadequate, being little more than a strainer for removing the coarser particles. And during emergencies the water was not even thus strained, but was pumped directly from the river into the supply pipes. No case of typhoid fever could be traced then to Lindsay water, because its bad odor and appearance prevented its general use for domestic purposes, although its use was at the time sanctioned by the Provincial Board of Health.

With the consent, however, of the local board of health, the town of Lindsay contracted for the ozone plant now in use; the substance of the guarantee of the installers of this plant being that the muddy, peaty and germ-laden waters of the Scugog River would be rendered absolutely palatable and safe for domestic use. And this in my opinion has been done. Outside experts employed by the water commissioners of the town of Lindsay previous to the acceptance of the ozone plant confirmed this opinion and the Lindsay water is now being used in the Ross Hospital, hotels and other public institutions and generally by our citizens without bad effect of any kind.

I believe that the ozone process of water purification is the ideal system, and I hold, contrary to the latest judgment of the Provincial Board of Health, that the Lindsay plant is and has been performing its duties in a most satisfactory manner.

J. McALPINE, M.D.,
Medical Health Officer.

Lindsay, Ont., Aug. 29, 1910.

The Disposal of Household Waste.

Dear Sir:

I have read with surprise an article in your June number by Dr. Sheard on the "Disposal of Household Waste."

A most graphic description is given of the picking and sorting of marketable refuse from the garbage at the city of Toronto. Dr. Sheard admits that garbage is an objectionable matter and should be destroyed by fire, but he does not condemn the practice of removing paper, rags, tins, etc., themselves probably of an objectionable character from the garbage.

Anyone who has examined a dump in any large city during the summer months must have been struck by the most unsanitary conditions prevailing, garbage collected recently and during the winter months decomposing and covered with a multitude of flies and pervading everything in the whole district an odor of the most offensive character. Can it therefore be considered desirable or sanitary to sort this rotting matter to obtain a few dollars by the sale of material that may be utilized again.

Dr. Sheard's statements about in-

cineration are misleading. He mentions a plant existing at Westmount, but then describes an entirely different type; this type of plant is of common occurence in Canada, and as he states, is undesirable. It has to be equipped with a very high stack to deliver the noxious gases above the surrounding district.

It cannot be situated in the proximity of any dwellings, and consequently the cost of haulage is considerable. Fuel is used to help the process of combustion, which is never complete, and the clinker that comes out of the fire is not in a satisfactory condition nor entirely free from organic matter.

At the Westmount installation, the whole of the refuse and garbage collected in the city is passed through a furnace. No other fuel is used, and no smell, smoke nor any other nuisance exists. The chimney is only about one hundred feet high above residential dwellings situated one hundred yards off. The clinker produced is entirely free from all organic matter, and is all used by the city themselves and contractors for concrete work, and brings in a considerable revenue. The steam generated by the heat produced by the combustion of the refuse and garbage effects a considerable saving in coal, which otherwise would have to be used at the electric power station.

At Vancouver, situated in a closely-populated district and within a hundred yards of the city hall, is another of the same type, and is giving the same satisfactory results. The cost of haulage in both these cities has been considerably reduced.

In large cities there is no doubt that combined incinerators and electric generating or pumping stations situated in different parts of the city could be run to entirely cover the cost of operation and produce a large saving in the cost of haulage.

Yours truly,

G. KILNER.

Montreal, Aug. 4, 1910.

Common Carriers Neglectful.

Dear Sir :

I realize that you have accomplished for the people of Canada a great deal of good in calling official attention to many grievances on the part of shippers due to neglect in our common carriers. I have on occasion taken the matter up with the express companies relative to the shipping of cream and the return of empty cans as promptly as they should, and caring for them properly at the unloading point. A short time ago I personally made an inspection of a lot of cans that had been thrown off at the opposite side of a station in a ditch at the side of the track where water frequently collects. I found cream cans there that had evidently been at the station for months, having been good cans when unloaded, but now completely rusted through. Upon enquiring I was informed that many of the cans which I found were unloaded during the winter months and frozen down in the ice, and when thawed out they were completely ruined for use.

I have seen the messenger deliver to the local express agent a few boxes of fruit, a crate of bananas and some other small express packages, followed at once by the conductor giving the signal, and the unloading of cream cans while the train was in motion. These cans were thrown from the car door and thrown for several yards along the right of way. Some of the cans were bruised, covers torn off and filled with sand and dirt which made them unfit for the handling of cream.

D. M. W.

St. John, N.B., Aug. 20, 1910.

Meetings and Reports

The American Association for Labor Legislation.

Definite announcement of the appointment of the committee of five that will wait upon President Taft in the near future to urge the investigation by the government of industrial and occupational diseases was made at the recent meeting of the general administrative council of the American Association for Labor Legislation, in Chicago. The committee as appointed by Professor Henry W. Farnam of Yale University, president of the council, follows:

Dr. Henry Baird Favill, president of the Chicago Tuberculosis Institute; Frederick L. Hoffman, statistician of the Prudential Insurance Company; Dr. David Estall, of Philadelphia; Professor Charles R. Henderson, University of Chicago; Fred M. Judson, St. Louis.

A series of reports, including those on unemployment by Ernest Freund, of Chicago, on workmen's compensation by Professor Henry R. Seager of Columbia University, and one on industrial hygiene by Dr. Henry B. Favill, were presented at the session. A discussion of immediate plans for investigation and legislation followed.

Those who took active part in the the speaking were Miss Jane Addams, who is first vice-president of the association; Professor Henry W. Farnam of Yale; Miss Crystal Eastman of New York; Professor Henry R. Seager of Columbia University, and State Factory Inspector Edgar T. Davies. A resolution prepared by John B. Andrews, secretary of the organization, having as its purpose the preparation of measures to protect workers in match factories from phosphorous poisonning was adopted unanimously.

There was a discussion by various legislative commissions from seven states of a tentative bill called the "Workers' Compensation Code."

The clause dwelt upon by the commission was the first in the tentative bill, and had to do with the definition of dangerous employments. Several were in favor of leaving the section in its present state, covering all forms of employment and terming them hazardous. Others advocated the elimination of agricultural and domestic pursuits from the list of dangerous occupations.

"In order to have a law of any value we must have a law to cover all trades," declared James A. Lowell, chairman of the Masachusetts commission. "Then the only way to do it would be to have the scale of compensation very low."

Professor Henry R. Seager was of the opinion that the conference, in the matter under discussion, was "between the devil and the deep blue sea."

"If we begin to legislate in a manner taking in all of the trades, we will have to begin to scale down the schedule of compensation."

He declared that there was anxiety in labor circles in New York as to whether the bill passed on the subject there was constitutional.

The next meeting of the association will be held in St. Louis during the Christmas holidays of this year.

American Public Health Association.

The thirty-eighth annual meeting of the American Public Health Association will be held at Milwaukee from Sept. 5 to 9 inclusive. Representatives from many national organizations working in the interest of public health have been invited to be present and discuss methods for the co-relation of the work of such organizations, and for co-operation with a view to increasing efficiency and economy. Sanitary engineering will occupy a conspicuous place on the programme.

This association is a purely altruistic body, and the oldest national sanitary organization in the United States. Its membership extends over the United States, the Dominion of Canada, Mexico and Cuba, and includes men and women of a wide range of professional and personal interests — physicians, engineers, teaches, chemists, bacteriologists and others interested in the public health, some officially, but many in private walks of life. Organized in 1872, it has been quietly working ever since for the public good.

Among those billed to read papers are: Dr. John A. Amyot and Mr. T. Aird Murray, Toronto; Dr. F. Montizambert and Dr. P. H. Bryce, Ottawa, and Dr. James Roberts, Hamilton, Ont.

Railway Mail Clerks' Convention.

During the Railway Mail Clerks' Convention, held recently at Kansas City, resolutions were adopted favoring more sanitary mail cars and the abolition of wooden cars.

The clerks also want reform in pay. The resolutions call for more than $200 a year difference in the pay of two clerks who make the same run in the same car, and who must furnish the same amount of ability and brains. The man in charge of the car, the resolutions suggest, should get $1,400 a year, but the second clerk should be raised to $1,200.

The committee of the whole protested against changes in working hours. Some roads have switched from the custom of six days' work and four days' rest to four on and four off, or two days at work and two days' rest. The clerks want the hours uniform.

The resolutions urge a retiring scale of pay. Clerks should, it is declared, be allowed to retire at 60 years of age or after twenty-five years of service, and clerks permanently injured in discharge of duty should be allowed to retire at any time and receive three-fourths of their former salary when they are retired. Sick leaves for clerks injured in the service, it is declared, should be extended to two years, the first year on full pay and the second year on half pay.

Convention of Mine Inspectors.

Workmen's compensation laws and better protective legislation for industrial workers were urged by John Mitchell, former head of the United Mine Workers of America, in a talk before a convention of mine inspectors held recently at Chicago.

He declared that America is far behind Europe in the matter of industrial legislation and the use of safety devices for the protection of life and limb of workmen in hazardous occupations.

"The terrible mine catastrophe at Cherry suggests to our minds remedies for the prevention of similar occurrences," said Mr. Mitchell. "No body of men has done more in the way of making mines safer than the mine inspectors.

"It is no credit, however, to America that a larger number is killed in industry than if two great nations were continually at war. I want to say with Theo-

dore Roosevelt that this continent is far behind Europe in industrial legislation.

"America is now the only place where the antiquated system of assumed risk and other legal doctrines still obtain. Isn't it much better to have an automatic compensation system for the workers?

"But the real problem is to preserve the life and limb of our wage earners. It is more valuable to society that the workers save their limbs and preserve their health.

"To you men who are charged with great responsibility belongs part of the task of developing a uniform system of legislation for the protection of miners. I submit that the conservation of our human resources is vastly more important than the conservation of all the material resources on earth."

A list of seventeen suggestions for better safety measures in mines was suggested by a committee on mining legislation. One of the suggestions was that a department of mines be established in each coal-producing state, with a chief inspector in charge. Suggestions on timbering, ventilation, electric signal systems and other technical subjects were discussed.

Postscript

Danger In Pop.

The two-cent ice cream cone is on the run. The two-cent pop bottle must follow. This is another of the warm weather dangers that await the thoughtless child.

Physicians and druggists, puzzled by the maladies of numerous children, have begun to suspect pop—pop at two cents the bottle. Trying this dubious drink on themselves, they have turned suspicion into certainty. It is now discovered that a good deal of the cheap pop on the market is doctored with lead salts to stimulate the appetite. A physician who drank a dozen bottles of this suspicious refreshment became severely ill from lead poisoning.

The Tour of a Smile—Start One.

My papa smiled this morning when
He came downstairs, you see,
At mamma; and when he smiled then
She turned and smiled at me;
And when she smiled at me I went
And smiled at Mary Ann
Out in the kitchen, and she lent
It to the hired man.

So when he smiled at some one who
He saw when going by,
Who also smiled and ere he knew
Had twinkles in his eye;
So he went to his office then
And smiled right at his clerk,
Who put some more ink on his pen
And smiled back from his work.

So when his clerk went home he smiled
Right at his wife, and she
Smiled over at their little child
As happy as could be;
And then their little child, she took
The smile to school, and when
She smiled at Teacher from her book
Teacher smiled back again.

And then the teacher passed on one
To little James McBride,
Who couldn't get his lessons done
No matter how he tried;
And Jamesy took it home and told
How Teacher smiled at him
When he was tired, and didn't scold,
But said: "Don't worry, Jim."

And when I happened to be there
That very night to play,
His mother had a smile to spare
Which came across my way;
And then I took it after while
Back home, and mamma said:
"Here is that very selfsame smile
Come back with us to bed!"

Milk Points.

Don't keep milk where it will be warmer than 50 degrees.

Don't leave it in an open dish or pan.

Dont put it in the bottom of the refrigerator.

Don't forget to sterilize every bottle.

The Electric-Weld.

The Combination Boiler is in all respects a plumbing fixture—substantial in construction—easy to install—has no delicate parts to get out of order, and will give continued efficiency through a longer period than is possible with other forms.

The "Electric-Weld" Combination Boiler puts at the service of the architect or the builder and plumber, the best

range boiler on the market, combined with the most efficient gas water heater at just about the price of any reputable range boiler plus that of the least inefficient independent heater.

A. Welch and Son, of 304 Queen St. West, Toronto, are the Canadian distributors.

The Modern Mother.

"I deny that the high-strung, fine-grained young American mother—the 'modern neurasthenic woman,' as half-baked literary critics have dubbed her—is other than the finest specimen of mother in the world.

"The educated young American mother is not neglecting her nursing function nor any other duty. She is, in the popular vernacular, 'on the job.'"

Thus declared Dr. Charles G. Kerley of New York, before the 1910 meeting of the American Medical Association.

Dr. Kerley was only one of the physicians who contributed remarks in a discussion tending to show that the modern woman is neglecting her nursing function for the exigencies of her social and physical life.

Dr. A. C. Cotton, of Chicago, said the crude hygienic laws that obtained among savages for the protection of the primeval mother and her new-born child were more humane and scientific than modern social practices.

An Efficient Disinfectant.

Dr. F. Schavoir, Health Officer at Stamford, Conn., writes as follows: "I have opened correspondence with a firm for the furnishing of disinfectants in large quantities, and after thoroughly in-

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Infants thrive on it.
Delicate and aged persons enjoy it.
Benger's is the only self-digesting food in which the degree of digestion is under complete control. It has therefore the great advantage of giving the digestive functions regulated exercise according to their condition.
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Manufacturers:—Benger's Food, Ltd., Manchester, England.

vestigating the efficacy claimed for their preparation, I feel safe in recommending same. The chief advantage I have found in the Rapid Cleaning Cartridge Disinfectant is the rapidity with which it permeates all material with which it comes in contact." Mr. Otto T. E. Veit, of 28 Wellington Street West, Toronto, Ont., is the Canadian agent for the Rapid Cleaning Cartridge.

Course In Sanitary Living.

Judge Neelen of Milwaukee decided when John Nicholis was brought before him for sleeping in garbage cans and eating from the refuse, that the man needed lessons in sanitary living. He sent him to the house of correction for ninety days for primary instruction.

At the Darktown Culture Club.

Chairman (concluding an address of introduction): An' now, ladies and gentlemen, I hab de honor of presentin, to dis audience de speaker of de ebening—Professor Johnsing, of de Westville Seminary—who will proceed to define de indefinable, depict de indepictable and unscrew the unscrewable!

To Supply Pure, Cheap Milk.

Keep the cow's tail still by banishing flies. A simple spray will do it.

Strain all milk thoroughly. Germs cling to the dirt particles and may thus be eliminated.

Sterilize all crocks and vessels by boiling.

Provide for early delivery of milk by tagging all cans and bottles with the time of milking.

Street Vacuum Cleaning.

Every city should be cleaned by air pressure and air suction. Cleaners that are seen in big cities in hotels and pri-

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vate houses should also be used in our public streets.

The cost would be slight, the streets could be piped, the air exhausted at certain points, and men quietly moving up and down the streets could pick up with their air-exhausting machines every particle of dust, paper and dirt.

While waiting for the streets to be provided with air suction pipes distributed economically throughout our cities, the thing could be done temporarily. A large vehicle with a gasoline or electric air pump moving along the streets, followed by men passing the air exhaust over the street surface, and drawing the dust and dirt into a dust-proof box on the wagon, would diminish the death rate, do away with a public nuisance—and remove far from the city endless billions of disease germs every

The dust collected could be burned or hygienically disposed of for fertilizing.

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ABSOLUTELY ODORLESS NON-POISONOUS

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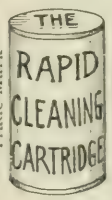

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Pharmacal elegance, strict uniformity in constituents and methods of manufacture, together with a certain superiority in the production of the most important volatile components, enable Listerine to easily excel all that legion of preparations said to be "something like Listerine."

"The Inhibitory Action of Listerine," a 208-page book, descriptive of the antiseptic, and indicating its utility in medical, surgical and dental practice, may be had upon application to the manufacturers, Lambert Pharmacal Company, Saint Louis, Missouri, but the best advertisement of Listerine is—

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Why do Physicians like them? Because you just jump in and go—that's all. No preliminaries. "Please hurry, Doctor."

Yes sir! Its simplicity, speed and noiseless machinery are its chief charms. The power is made at the Electric Light Station and stored in the Storage Battery inside the car. This is done right at your home, if you wish.

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Fortunately, the disappearance of the horse from our streets is a matter of only a few years. The dumping of dirt on the streets by business houses will be stopped. The pavements and the street cleaning will be done by the vacuum process, and this will be followed by regular sprinkling with disinfectants—salt water where this is possible.

It is perfectly safe to say that before the end of this century every big city, its streets, public parks, alleys and crevices, will be kept as clean as the modern hospital. A beginning should be the installation of vacuum cleaners everywhere.

Wrapped Bread.

There have been many complaints from various parts of the country on account of bread souring or becoming mouldy in a very short time after it is baked. This bread is the kinds wrapped in the oiled or paraffined paper. Unwrapped bread does not appear to have these tendencies.

The oiled paper around the bread has great sanitary value in handling, but it may be found to be a danger also. From experiment made it has been found that bread baked with a nice brown crust and then wrapped in paper immediately afterward became sour or mouldy much quicker than bread from the same baking that was not wrapped. A pure food regulation exists requiring that all bread be wrapped for sanitary reasons, but on account of so much complaint from sour and mouldy bread it may become necessary to rescind the order.

The Wages of Uncleanliness.

Prevent the fly from breeding by allowing no filth to accumulate in and around your premises. Remember that the wages of the sin of uncleanliness is death.

The parlor may be the picture of clean-

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S.E.C. — Blaud Plain

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No. 51	,, ,, ,,	= 10 grs.
No. 52	,, ,, ,,	= 15 grs.

Blaud and Arsenic

No. 53	Blaud	= 5 grs.
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	Arsenical solution	= 2 mins.

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No. 56	Blaud	= 5 grs.
	Ext. Aloes	1 gr.
	Ext. Nux Vomita	¼ gr.
No. 57	Blaud	= 10 gr.
	Ext. Aloes	1 gr.
	Ext. Nux Vomita	¼ gr.
No. 58	Blaud	= 15 grs.
	Ext. Aloes	1 gr.
	Ext. Nux Vomita	¼ gr.

Blaud Arsenic and Nux Vomita

No. 59	Blaud	= 5 grs.
	Arsenical solution	= 1 min.
	Ext. Nux Vomita	¼ gr.
No. 60	Blaud	= 10 grs.
	Arsenical solution	= 2 mins.
	Ext. Nux Vomita	¼ gr.

Blaud Arsenic and Strychnine

S.E.C.

No. 61	Blaud	= 5 grs.
	Arsenical solution	= 2 mins.
	Strychnine	1-50 gr.
No. 62	Blaud	= 10 grs.
	Arsenical solution	= 2 mins.
	Strychnine	1-50 gr.

Blaud Tonic Laxative

No. 65	Blaud	= 10 grs.
	Arsenical solution	= 2 mins.
	Ext. Nux Vomita	= ¼ gr.
	Phenolphthalein	= ½ gr.

The full line of Frosst's Soluble Elastic Capsules, embracing many effective formulae, found on pages 57 to 62 of Frosst's regular price list, will be of interest to physicians.

Charles E. Frosst & Co.

MONTREAL, CANADA

liness, but if flies are in the kitchen and dining-room there is filth and contamination in the home. See that your grocer confectioner and butcher keep flies away from the food that you buy. In some towns you will find the dry goods stores screened, while the grocery and confectionery stores are all open, and thousands of flies get in contact with the food that you eat. This breeds disease.

Keep flies out of the home by screening your windows and doors. Screen all foods, especially milk. One is taking his life in his hands by eating food with which flies come in contact. Screen the baby's cradle and keep flies away from the baby's bottle and "comforter." Keep flies away from the sick, especially those ill with consumption, typhoid fever, scarlet fever, and diphtheria. Kill these vermin that enter the sick room. Disinfect and properly dispose of all excreta.

Horses and Auto.

An exchange says: "Automobiles seem to be doing their part, and perhaps flying machines are to help, in banishing horses from cities. Manure farmers' and truck gardeners' trusts complain that the gases, smoke, lubricating oils of automobiles are destroying the fertilizing qualities of horse sweepings. Well, it does help to kill some of the deadly bacteria. It seems to be the only way out of it; let the authorities make up their minds to keep it off the street in the first place. Most horses carry a receptacle on shafts with little or no more inconvenience or discomfort than their breeching. All this crusade against people spitting on the sidewalks was a good thing, but it really seems childish and Quixotic when compared to horses.

"With the perfection of the motor-driven vehicle for all purposes the last argument in favor of the beast of bur-

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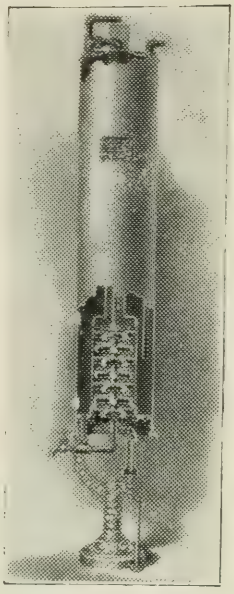

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The same rules, practically apply to railway stations, which should be thoroughly cleaned once a week.

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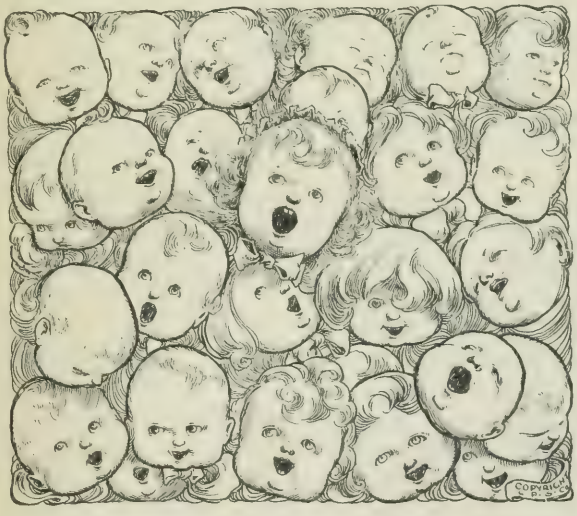

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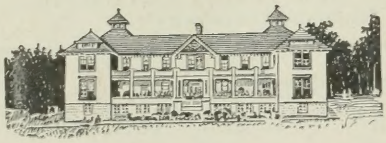

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less sold directly from the oven, should be covered with a paper wrapping. If housekeepers would insist on paper envelopes for their loaves bakers would soon find it to their advantage not to sell bread under other conditions. When wrappings are not used the loaves should be handled with a large, two-pronged fork that does not break or prick the loaf, but merely grasps it. Some bakers are now using such forks. Cheese should always be handled with a fork after cutting.

Rats As a Menace.

Official figures show that it costs about twenty-five cents to kill a rat in San Francisco, where they are terribly in earnest in efforts to exterminate this vermin which transmits the bubonic plague and other Oriental diseases. There are thirty men divided into four squads, over each of which is a foreman. Eight thousand traps are used, baited with cheese, savory bacon and bread, the total monthly catch averaging one rat to the trap, which is not considered bad considering that the campaign has been pressed vigorously so long.

The cost per rat seems large, but it is worth it. It is pleasing to learn that extermination seems to be the fate of the California rats, for there is no longer much chance for them to escape from incoming vessels.

Zoologists tell us that rats originally came from Norway. It was Josh Billings who wished that they had originally stayed there. They have spread all over the world and thrive in every climate and almost under every environment. In the days of wooden ships they throve upon the high seas, but in these days are more easily exterminated—a fact which is fortunate, for modern science has clearly proved that the sharp-toothed rodents are dangerous carriers of infection.

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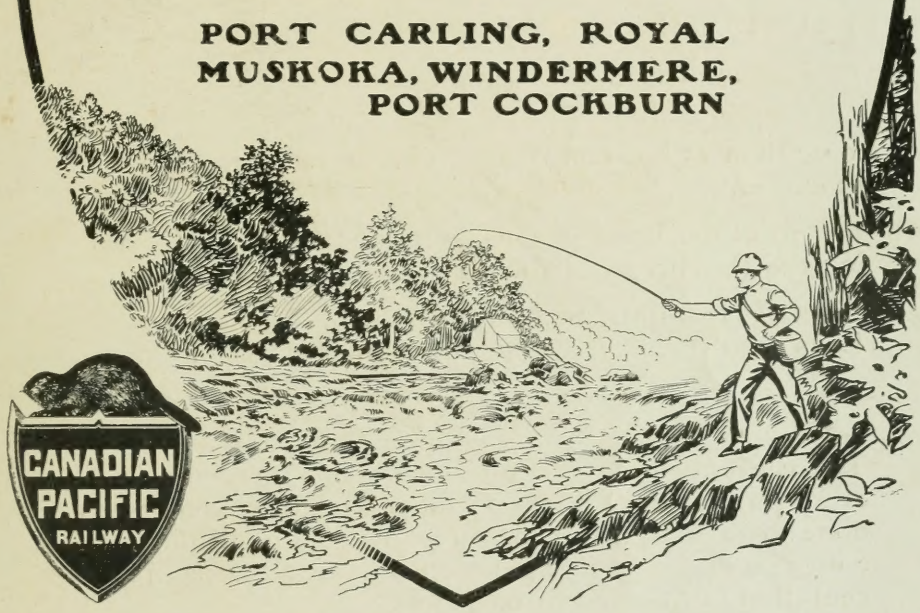

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